

# *Macintosh<sup>®</sup> Troubleshooting Efficiency*

*Paul Rego*

Removing the complexities of computer troubleshooting, this book takes a modular approach to isolating problems and finding solutions.

By compartmentalizing the situation,  
you won't get bogged down with irrelevant details...  
Fix the area which contains the problem and the problem is solved!

All the hard work has been done for you.  
Look up the problem in the chart, follow the steps and solve the problem.

Macintosh® Troubleshooting Efficiency  
Paul Rego

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*To the members of M.A.C.S.,  
the Macintosh Asheville Computer Society,  
who encourage me through their interest in the Macintosh and  
who challenge me with their questions.*

*<http://homepage.mac.com/macsnr>*

# Table Of Contents

<b>Overview</b>	<b>1</b>
Items To Notice	2
Don't Jump To Conclusions	4
Save Your Settings	4
<b>Compartmentalize The Problem</b>	<b>10</b>
A Modular View	12
<b>Modules And Solutions</b>	<b>15</b>
Problems & Solutions Chart	16 - 25
<b>Fixing The Modules</b>	
Check the electricity	28
Check with new User account	29
Monitor Hardware problem	30
Mac Hardware problem	31
Verify RAM	32
Reset date and/or time	37
Replace the PRAM/Clock/Backup battery	38
Run DiskWarrior	40
Hold Option key at startup	42
Hold Shift key at startup	43
Monitor worn out	48
Reset the PMU/SMC/SMU/PRAM	49
• For the Mac mini (pre 2006) and iMac (2005)	50
• For the Mac Pro, Mac mini (early 2006) and iMac (2006)	50
• For the MacBook Pro (2006+) and MacBook (2006+)	51
• For the PowerMac G5 (2004 and 2005)	52
Zap the PRAM	53
Reset drive in System Preferences	55
Reset Boot-drive with OSX disc	56
Low-Level-Format the Hard Drive	57

## (Fixing The Modules continued)

Replace Hard Drive .....	59
Unplug USB and FireWire Hub .....	62
Mount optical disc .....	64
Remove the optical disc .....	66
Unplug all devices .....	69
Erase and Install Mac OS X .....	70
Replace USB/FireWire device .....	72
Replace low ink tank .....	73
Flush ink with printer utility Software .....	75
Be sure to use “name-brand” ink .....	76
Replace the cable .....	77
Reset printer (contact tech support) .....	78
Replace print head (if possible) .....	79
Repair/replace printer .....	80
Check for loose fan wire .....	81
Fan/Mac Hardware problem .....	82
Shutdown & Restart Mac & devices .....	83
Isolate from interference .....	84
Check device batteries .....	85
Verify wireless card .....	86
Check Software settings .....	88
Check for Repair Extension Program .....	90
Check for Firmware update .....	91
Test device on another computer .....	93
Update Mac OS X .....	94
Downgrade Mac OS X .....	95
Wireless Device problem .....	97
Check network settings .....	98
Repair Permissions .....	99
Trash Caches .....	101
• (also see “Trash .plist files” > “Files which can be safely thrown out”)	
Trash “.plist” files .....	102
• Files which can be safely thrown out .....	103
Force-empty the Trash .....	106
Add more RAM/Memory .....	108
Reinstall “Combo” update .....	109

## (Fixing The Modules continued)

Archive and Install Mac OS X .....	111
Reinstall device Software .....	113
Check “Applications” folder for program .....	114
Upgrade device Software .....	116
Reinstall Application .....	117
Update Application .....	118
Switch to Broadband .....	119
Reset Modem, Router and Mac .....	120
Check the data cable .....	122
Rebuild Mailbox .....	124
Reduce the number of messages .....	127
Change “Outgoing Server Port” to 587 .....	129
Trash “Envelope Index” (if IMAP) .....	130
Check ISP for troubleshooting .....	131
Trash Browser “.plist” file & “icons” .....	132
Empty Browser Cache files .....	133
Delete Browser Cookies .....	135
Clear Browser History .....	137
Reinstall Browser .....	138
Update Browser .....	139
Check Universal Access .....	140
Contact ISP support for problems .....	141
Contact Router support for help .....	142
Modem Hardware problem .....	143

## What Caused The Problem? .....

Bad Electricity .....	145
Batteries (desktop Macs) .....	145
Poorly-Written Software .....	146
USB Device .....	146
RAM (memory) .....	147

## What's Connected To What? .....

Macintosh .....	149
Monitor/Display .....	150
A Program (Software, Application) .....	151

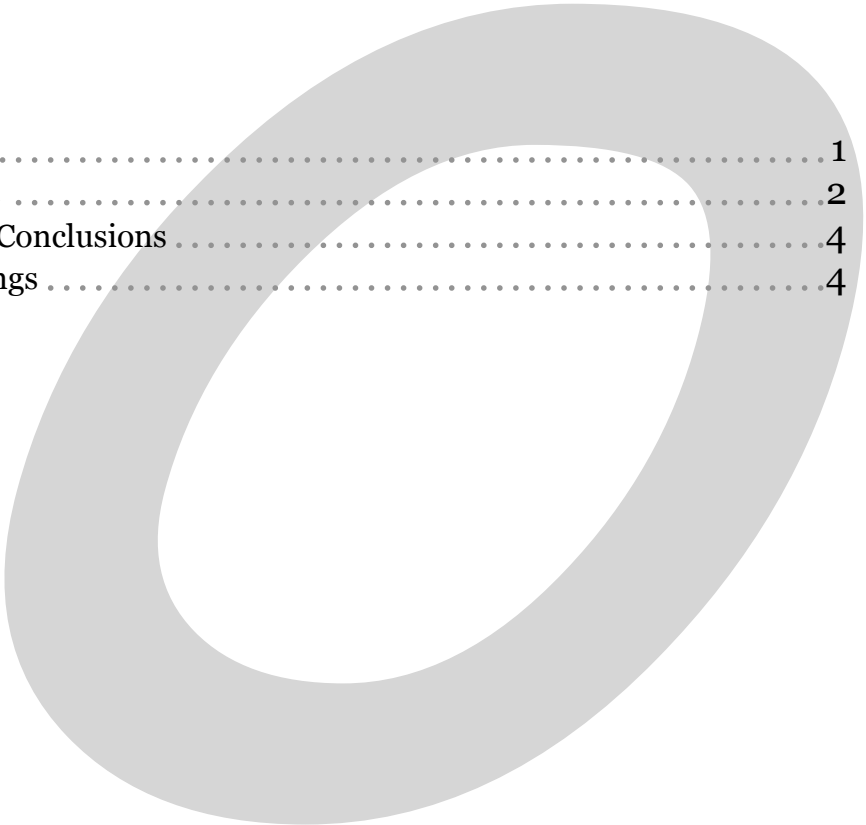
## **(What's Connected To What? continued)**

Keyboard and Mouse (WIRELESS).....	152
Inkjet Printer, Scanner, Camera .....	152
External Hard Drive.....	155
<b>Quick Fixes</b> .....	157
Cures Most Problems.....	157
<b>Who To Turn To?</b> .....	159
<b>General Dos And Don'ts</b>	
No food or drink near the computer .....	164
Use a UPS .....	165
Check UPS.....	166
Ground the electrical outlet .....	166
A basic rule about Mac OS X is.....	167
<b>Maintenance</b> .....	169
Backup Your Work.....	169
Saving Your eMail Messages.....	170
Run DiskWarrior ( <a href="http://www.alsoft.com">www.alsoft.com</a> ) .....	171
Repair Permissions .....	172
Cleaning The Screen .....	173
<b>Buying Advice</b> .....	175
DiskWarrior .....	175
"Name-Brand" RAM (memory) .....	175
UPS.....	175
Screen Cleaner .....	175
<b>A Summary Of Contact Information</b> .....	177
<b>About The Author</b> .....	180
<b>Glossary</b> .....	181
<b>Index</b> .....	193

# Overview



<b>Overview</b>	<b>1</b>
Items To Notice	2
Don't Jump To Conclusions	4
Save Your Settings	4





If you see this character > it means:  
Select this option > then select this option.

If you see this character ^ next to a phrase or word such as Sidebar^, it means this word or phrase is defined in the Glossary at the back of this book.

NOTE: The best use of this book would be for you to start at the beginning and read all the sections except for “Fixing the Modules”. These are the actual solutions to most Macintosh problems and may make more sense in context — while actually solving a problem.

Although you can read this book “page by page”, the solutions presented in the “FIXING THE MODULES” sections do not appear after each other in any specific order. If you need to jump in and solve a problem in a hurry, start with “Modules and Solutions” and then jump to the PROBLEMS & SOLUTIONS CHART. If you know you need a specific solution, but don’t know the steps, you can simply look it up in the Table Of Contents.

## Overview

Computers really are filled with “rocket science”. Behind the scenes, there are a LOT of fantastic technologies which have been fine-tuned to work seamlessly together. Apple does a great job of hiding those technologies and, at the same time, making it easy for us to interact with them. However, when it comes to solving a computer-related problem, we sometimes find ourselves tangled in that same technology.

When solving a computer problem, it’s important to:

- Clearly define the problem,
- Don’t jump to conclusions,
- Gather only the FACTS,
- Question and verify all the details.

## 2 Overview

First, you must clearly define the problem — even to yourself. Simply saying “Mail doesn’t work”, doesn’t give us much to go on. If you look closer at your Mac’s situation, you may be able to define the problem as “Today, is the first time I noticed duplicate eMails in my Mail program.” In other words, no one can help with your Mac’s problem until you can explain it with some detail.

If someone else is available for a few minutes, ask them to double-check everything you’re doing — even if you’re an expert and they’re not. If no one else is around, start at the beginning, take your time, go over every detail carefully and describe what you’re doing out loud. Even experts get tired or approach the same problem the same way and this can easily get us into a rut of not seeing the problem. Sometimes it really is as simple as wrongly connecting a telephone cable to an Ethernet<sup>^</sup> port or jumping into the deep end of a problem and not remembering that you had disconnected one of the components earlier. So if you can find someone to assist you, your work will be that much easier. Those individuals who really don’t understand computer technology may be your best helpers. It’s always an awakening experience when you’ve been floundering with a problem for over an hour and a novice walks in and says, “Hey, what’s this dangling wire for?”.

### Items To Notice

Here are some things you should examine before tracking down the problem or contacting someone for assistance:

- Has the Macintosh recently had any physical or Software changes?
  - Δ Have you recently moved the Macintosh or any of its cables?
  - Δ Have you recently added, removed or changed any programs?
- Does your Macintosh have extra RAM?
  - Δ If so, is the extra RAM “generic” or “name brand”?
- Does the problem occur when you first turn ON the Macintosh or does it appear after it’s been ON for a while?

In troubleshooting a computer problem, you’ll have to think like a detective. Take some time to think about the situation and make some notes of what you remember before the problem appeared — these will be your clues. Be sure to use your Eyes, Ears, Nose and sense of Touch, when gathering your information.

- Although there may be one glaring problem with a specific program, did you notice any other problems or out-of-the-ordinary behavior?
- Did you hear any sounds coming from the Macintosh or any device connected to it, which were not normal?
- Did the Screen^ show any unusual flickering, waviness, colors, stripes, etc.
- Is there a burning smell coming from the Macintosh or one of the devices connected to it?
- Is the Macintosh hotter than usual?
- Is the Macintosh vibrating a lot?

**WARNING:** If you smell something burning or suspect an electrical problem, shut down the Macintosh, all devices connected to it and unplug all of their electrical cords. Turning OFF the surge protector will offer a fair amount of PEACE OF MIND but removing an electrical cord from the electrical outlet is much better in this situation.

If the Macintosh is a PORTABLE model (iBook, MacBook or MacBook Pro), you may not want to remove its battery until you can speak with someone who knows more about your Mac's current problem. Doing so MAY make the problem worse and since we're talking about a battery which produces a strong electrical current, it's not something you want to take chances with.

So, if this is your current situation and you've unplugged all electrical cords, you shouldn't re-connect them in order to do further testing or troubleshooting. At this point, your best course of action would be to telephone a reliable technician. You may want to start with Apple's AppleCare number:

1-800-APL-CARE (1-800-275-2273)

Even if you don't have AppleCare, as of this writing (7/14/07), Apple offers PER INCIDENT support for most of their products. Just call the above number for details. Other options for tech support would be for you to call your local Apple Store or a qualified Macintosh technician in your local area. (also see "WHO TO TURN TO?" for more suggestions)

## 4 Overview

### **Don't Jump To Conclusions**

Sometimes fixing the problem is as simple as focusing on the device (such as the printer) or program (such as Safari). (See “WHAT’S CONNECTED TO WHAT?” for information on how to examine various components.)

Sometimes, however, fixing a problem means NOT focusing on the most obvious area. For example, let’s say you have a wired (physically connected) keyboard and it doesn’t work properly. There are no batteries involved (because it’s not WIRELESS) and it has worked flawlessly for several months. The problem may not be with the keyboard. I’ve seen more than a few situations where this type of thing has happened and the problem ended up being in the USB^ “Hub”^. Even though the customer informed me that this Hub had not shown any sign of problems for more than 6-months! I removed the Hub from the configuration, plugged the keyboard directly into the Macintosh, and everything worked fine. The Hub had either simply GONE BAD or had an electrical surge, which then caused it to behave erratically.

For another example, we can talk about the printer... Let’s say you don’t print very often but today you decide you need a few copies of a document. You turn ON the printer. It may or may not begin to make noises but the document you want does not appear. Yes, sometimes the ink can dry up (in inkjet printers) but for this example, you finally remember that you upgraded the Mac’s Operating System^ from Mac OS 10.4.3 to Mac OS 10.4.10. In this new version, Apple changed the way the Macintosh communicates with your particular printer, and now it won’t work. So, in this example, the problem is not in the printer but with its “Software”. To solve this problem, you would simply visit the printer manufacturer’s website and see if there is a new “Printer Driver^” — Software which tells the Macintosh how to communicate with a specific printer.

### **Save Your Settings**

When troubleshooting...Before diving in and possibly throwing out various settings, which you’ll have to re-configure later, you may want to write them down or better yet, take Screenshots^. In this way, if you have to restore them in the future, you’ll know what your Mac’s configuration was when everything was at its optimum.

Having a visual image of various settings can be a great way to re-enter those settings in the future. This is better than simply writing those settings down on paper because you'll not only see the information but also the exact location where that information should go.

Here are the settings you should take Screenshots of...

- For “Dial-Up”, non-high-speed, Internet access:
  - 1 - Pull down the “Apple” menu and choose “System Preferences...”.
  - 2 - Click the “Network” icon.
  - 3 - Pull down the “Show:” menu and choose “Internal Modem”. (If you’re using an external Modem, this menu option may read “USB Modem”.) You can now take Screenshots of all these sections. However, for most home-use purposes, the main dialog boxes are “PPP”, “TCP/IP” and “Modem”.
  
- For high-speed Internet access:
  - 1 - Pull down the “Apple” menu and choose “System Preferences...”.
  - 2 - Click the “Network” icon.
  - 3 - Pull down the “Show:” menu and choose “Built-in Ethernet”. You can now take Screenshots of all of these sections. However, for most home-use purposes, the main dialog boxes are “TCP/IP” and “PPPoE”.
  
- When using Apple’s AirPort technology (wireless networking):
  - 1 - Pull down the “Apple” menu and choose “System Preferences...”.
  - 2 - Click the “Network” icon.
  - 3 - Pull down the “Show:” menu and choose “AirPort”. You can now take Screenshots of all of these sections. However, for most home-use purposes, the main dialog boxes are “AirPort”, “TCP/IP” and “PPPoE”.
  
- When using “Bluetooth” (wireless connections) devices:
  - 1 - Pull down the “Apple” menu and choose “System Preferences...”.
  - 2 - Click the “Bluetooth” icon.
  - 3 - Take Screenshots of all of these sections (Settings, Devices, Sharing, etc.).

# 6

## Overview

- To capture your eMail settings:
  - 1 - Open Apple's "Mail" program.
  - 2 - Pull down the "Mail" menu and choose "Preferences..."
  - 3 - Although you can take Screenshots of all of these sections, most of them only deal with attributes which YOU decide to use or change. The important settings, which allow you to Send and Receive eMail are "Accounts" ("Account Information" and "Server Settings...").

Here are the different ways to take Screenshots:

- Screenshot of the entire Screen<sup>^</sup>
  - 1 - Hold down the Command (Apple) key.
  - 2 - Also hold down the Shift key.
  - 3 - While those two keys are down, touch the number 3, then release all three keys. At that point, you should hear the sound of a camera shutter clicking.
  - 4 - Look on the Desktop<sup>^</sup> and you should see a new file called "Picture 1".

NOTE: If a file called "Picture 1" was previously on the Desktop, this new file will be called "Picture 2". This naming convention continues each time you take another Screenshot.

- Screenshot of any part of the Screen you choose
  - 1 - Hold down the Command (Apple) key.
  - 2 - Also hold down the Shift key.
  - 3 - With those two keys down, touch the number 4, then release all three keys.
  - 4 - The Pointer<sup>^</sup> should now look like a plus sign with a gray dot in the center. This is feedback telling you the Macintosh is ready to take a picture of whatever you drag across. I find it easiest to always think of starting in the top-left corner of the area I want to select. Move the Pointer to this location, then hold down the mouse button and drag to the bottom-right corner of the area you want included in the picture.

NOTE: Before releasing the mouse button, if you change your mind and do not want to take a picture, simply press the “Escape” key on the keyboard.

- 5 - When you release the mouse button, you should hear the sound of a camera shutter clicking.
  - 6 - Look on the Desktop and you should see a new file called “Picture 1”.
- Screenshot of any currently-open window
- 1 - Hold down the Command (Apple) key.
  - 2 - Also hold down the Shift key.
  - 3 - While those two keys are down, touch the number 4, then release all three keys.
  - 4 - The Pointer<sup>^</sup> should now look like a plus sign with a gray dot in the center. This is feedback telling you the Macintosh is ready to take a picture of whatever you drag across. However, at this point, we’re going to instruct the Macintosh to perform this task with a little more precision. Touch the Spacebar once and the Pointer<sup>^</sup> will change into a camera. This is feedback telling you the Macintosh will take a picture of any window the Pointer is over. As you move the Pointer around the Screen, any window the Pointer (camera) is over, will have a blue cast to it.

NOTE: Before clicking the mouse button, if you change your mind and do not want to take a picture, simply press the “Escape” key on the keyboard.

- 5 - When the Pointer is over the window or dialog box you want a picture of, press the mouse button once and you’ll hear the sound of a camera shutter clicking.
  - 6 - Look on the Desktop and you should see a new file called “Picture 1”.
- Using the “Grab” program
    - 1 - Click once on the “Finder” icon, in the “Dock<sup>^</sup>”.
    - 2 - Open the “Applications” folder.

# 8

## Compartmentalize The Problem



- 3 - Open the “Utilities” folder.
- 4 - Launch the program called “Grab”. This program offers features which allow you to take Screenshots in a few more flexible ways, including the use of a timer. Pull down its menus, especially its “Help” menu, to discover its capabilities.



<b>Compartmentalize The Problem</b> .....	10
A Modular View .....	12

## 10 Compartmentalize The Problem

One of the most important aspects to solving computer problems is to COMPARTMENTALIZE the situation. Think about the various modules a computer consists of (Macintosh, Software, connected devices, etc.) and isolate the problem to one of these areas. By breaking down the Mac's functions into major areas, you will save yourself a lot of time, because you won't have to PINPOINT the exact item which is causing the problem, AND it's possible to fix more than one problem by fixing that one area — you may even fix problems you didn't know your Mac had.

Many years ago, before Mac OS X, and before I realized this compartmentalizing approach, I would try to find the exact Extension<sup>^</sup> which was causing the problem. (An "Extension" is a specialized program which adds functionality and attaches itself to the Operating System<sup>^</sup> when the Macintosh starts up.) There was even a program called "Conflict Catcher" (by Casady & Greene) which would isolate half of the Extensions, restart the Mac and ask you if the problem was still there. If it wasn't, the program would de-activate these Extensions, activate the other half and restart the Mac. If you did find the problem, it would then load (activate) half of THOSE Extensions. This would go on and on until you finally located that one Extension which was causing the problem. However, after a handful of these adventures, most of the time not finding the problem, I noticed that the number of restarts was probably causing more harm than good — so I stopped using that program.

Over time, I thought about this... Because some of those Extensions had "support Extensions", to implement related technologies, the end-result, in most cases, was to re-install the entire Operating System. When more than one Extension contributed to the problem, it was nearly impossible to simply locate and replace them with reliable copies. (Because one or more Extensions had become corrupted, I could simply install the same version of the Operating System replacing LIKE-FOR-LIKE. This would not upgrade anything but would replace many items with a factory-fresh copy of what was already installed.) About 95% of the time, this would solve the problem.

Before my compartmentalizing approach, I worked as the local (Asheville, North Carolina) Apple mass market rep. for several years. I was responsible for setting up new Macs in various retail outlets, making sure they ran properly and training the

sales staff. Sometimes customers would come in with questions about problems they had encountered. If I couldn't solve the problem, I had a special number for Macintosh tech support. Because these Apple technicians knew they were dealing with reps, which had at least a little technical savvy, they could simply give us the quick version of what to do — knowing you already knew HOW to do it.

Over time, I also thought about those conversations. In each case, they tried to compartmentalize the problem. Once they knew which area the problem was in, they would tell me what to do. Most of the time, the solution was to:

- Re-install the program, or
- Re-install the Operating System, or
- Zap^ the PRAM^

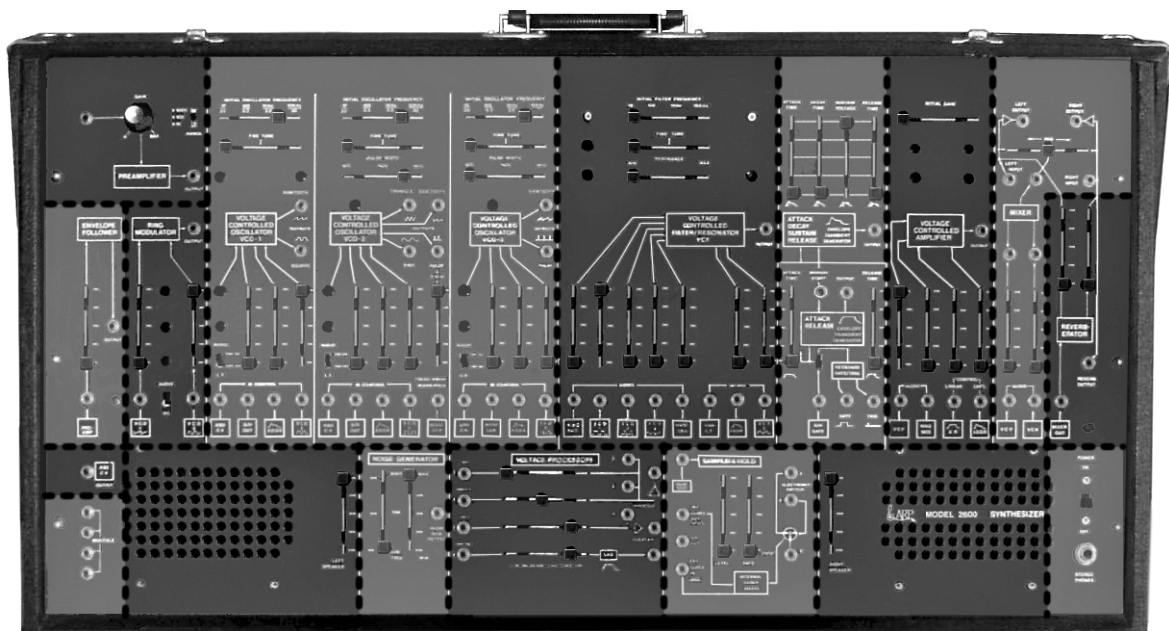
After many years of problem solving the hard way, I finally cleared my head and thought things through. That's when I started this approach.

# 12 Compartmentalize The Problem

## A Modular View



In order to help you break down the complexities of a computer's "rocket science" into COMPARTMENTS or MODULES, I want you to take a look at this photo. Even if you know what it is, at first glance, it looks very complicated. Although this image may not look real, it is very real. This is a photo of an "Arp 2600" analog music synthesizer (circa 1979). Yes, it's used to create music. Although I'm a drummer, I studied analog synthesizers and sound-creation for many years. My first personal viewing of a professional synthesizer was when I began private lessons on a Studio Moog at Jacksonville University in Jacksonville, Florida. Those feelings on my first day were probably similar to what you are feeling when looking at the above photo... "It's extremely complex.", "All I see are random white and black lines.", "I can't believe this thing actually makes music."



In the above photo, I have sectioned off each module of the ARP 2600. This instrument has a very elegant and useful design. For the most part, sound within the ARP 2600 flows from left to right. Sound is processed or created with the far left and left modules, modified with the center modules, amplified and sent to the speakers with the right modules. Although you may not be able to create music with it, at this point, this instrument should now look more approachable.

During my first Studio Moog lesson, I began to see past the massive sea of components which initially confused me, by noticing there were groupings of switches and sliders. One of the first things Professor Hoskins pointed out to me were the MODULES... “If you can see the modules, and understand what each does, it won’t be long before you also understand how each interrelates to the others.” This is an important statement. In working with an analog synthesizer, you cannot make music without seeing each module and knowing how to connect them. The same is true for my approach to computer problem solving... Break down a computer’s confusing technology into MODULES or COMPARTMENTS, understand how they interrelate and you’re on your way to solving almost every computer-related problem with the least amount of effort.

# 14 Modules And Solutions

Modules And Solutions .....	15
Problems & Solutions Chart .....	16 - 25

The PROBLEMS & SOLUTIONS CHART breaks down various Macintosh-related problems into modules (the “Problem” column). Next to each module you’ll see a list of Solutions. The top of each “Solutions” list contains the easiest things you can do, and the rest of the list gets progressively more involved. Simply start with the first item and do each one in the order presented. The order of this list is based on my work experience. I’ve figured out WHAT to do and WHEN to do it. Don’t skip any items in the list. Doing so you will risk arriving at the wrong conclusion.

Start by looking in the “Problem” column, for the situation your Macintosh is experiencing. Then, look in “Solutions” column for the item which should be examined. If you’re a Macintosh troubleshooting expert, this column will be the memory-jogger which will help you solve the problem without going further. However, if you’re not an expert, simply look up the first solution for that problem in the “FIXING THE MODULES” section. This will explain WHAT needs to be done. If the first Solution doesn’t solve the problem, keep going down the Solutions list for that problem. If you’ve completed the “Solutions” list for any one problem but the problem still exists, you either have more than one problem or you need to re-examine the details you have collected.

**WARNING:** Before beginning any corrective measures, it’s ALWAYS a good idea to backup ANY and ALL data which is important to you: Documents, Images, eMail messages, eMail settings, Address Book entries, Browser^ Bookmarks, Game preferences, etc.

You don’t have to backup Applications^ or Operating System^ items. In fact, unless you cannot reinstall an Application, it’s BEST to install the Operating System and any programs with their Installers. This will not only place a factory-fresh copy on the Hard Drive, it will make certain that all necessary pieces are in their correct locations.

PROBLEM:	SOLUTIONS:	Page:
Mac won't start	Unplug USB and FireWire Hub.....	62
	Unplug all devices .....	69
	Check the electricity.....	28
	Run Diskwarrior .....	40
	Repair Permissions .....	99
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Hold Shift key at startup.....	43
	Hold Option key at startup .....	42
	Reset Boot-drive with OSX disc.....	56
	Verify RAM.....	32
	Check for loose fan wire.....	81
	Zap the PRAM .....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Replace the PRAM/Clock/Backup battery..	38
	Replace Hard Drive.....	59
	Mac Hardware problem.....	31
.....		
Black Screen on Startup (also see page 20)	Remove the optical disc .....	66
	Check for Repair Extension Program.....	90
	Verify RAM.....	32
.....		
Gray Screen on Startup (also see page 20)	Remove the optical disc .....	66
	Unplug USB and FireWire Hub.....	62
	Unplug all devices .....	69
	Run Diskwarrior .....	40
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Verify RAM.....	32
.....		
Blue Screen on Startup	Hold Shift key at startup.....	43
	Check for Repair Extension Program.....	90
	Verify RAM.....	32

.....



PROBLEM:	SOLUTIONS:	Page:
Mac starts from wrong drive	Reset drive in System Preferences.....	55
Flashing Question Mark on Startup	Hold Option key at startup .....	42
	Reset Boot-drive with OSX disc.....	56
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Check for Firmware update .....	91
	Zap the PRAM .....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Low-Level-Format the Hard Drive.....	57
	Replace Hard Drive.....	59
	Mac Hardware problem.....	31
.....		
Erratic Startup problems	Verify RAM.....	32
	Unplug USB and FireWire Hub.....	62
	Unplug all devices .....	69
	Zap the PRAM .....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Replace the PRAM/Clock/Backup battery..	38
.....		
General Erratic Macintosh behavior	Zap the PRAM .....	53
	Verify RAM.....	32
.....		
Wrong time and/or date	Reset date and/or time .....	37
	Zap the PRAM .....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Replace the PRAM/Clock/Backup battery..	38

.....

# 18 Problems & Solutions Chart 3 of 10

PROBLEM:	SOLUTIONS:	Page:
Mac won't Sleep	Shutdown & Restart Mac & devices.....	83
Mac won't Wake	Hold Shift key at startup.....	43
Mac won't shutdown	Unplug USB and FireWire Hub.....	62
	Unplug all devices .....	69
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Trash Caches .....	101
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Check with new User account.....	29
	Zap the PRAM.....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Reinstall "Combo" update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
	Verify RAM.....	32
.....		
Application won't Launch (doesn't apply to eMail)	Shutdown & Restart Mac & devices.....	83
	Check "Applications" folder for program ...	114
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Trash ".plist" files.....	102
	Trash Caches .....	101
	Hold Shift key at startup.....	43
	Check with new User account.....	29
	Add more RAM/Memory .....	108
	Reinstall Application .....	117
	Update Application .....	118
	Update Mac OS X.....	94
	Downgrade Mac OS X.....	95

PROBLEM:	SOLUTIONS:	Page:
eMail program won't Launch	Reset Modem, Router and Mac .....	120
eMail program won't Quit	Check the data cable .....	122
Can't Send eMail	Run DiskWarrior .....	40
Can't Receive eMail	Repair Permissions .....	99
eMail program won't work properly	Rebuild Mailbox.....	124
eMail is slow	Reduce the number of messages .....	127
	Change "Outgoing Server Port" to 587 .....	129
	Trash "Envelope Index" (if IMAP) .....	130
	Check ISP for troubleshooting.....	131
	Add more RAM/Memory.....	108
	Reinstall "Combo" update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
.....		
Files won't Save	Shutdown & Restart Mac & devices.....	83
	Hold Shift key at startup.....	43
	Run Diskwarrior .....	40
	Repair Permissions .....	99
	Trash Caches .....	101
	Trash ".plist" files.....	102
	Check with new User account.....	29
	Check for Firmware update .....	91
	Reinstall "Combo" update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Low-Level-Format the Hard Drive.....	57
	Replace Hard Drive.....	59
.....		

# 20 Problems & Solutions Chart 5 of 10

PROBLEM:	SOLUTIONS:	Page:
Most processes are slow	Shutdown & Restart Mac & devices.....	83
Black or Gray Screen with message at Startup	Unplug all devices .....	69
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Trash Caches .....	101
	Trash “.plist” files.....	102
	Check with new User account.....	29
	Hold Shift key at startup.....	43
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Add more RAM/Memory.....	108
	Low-Level-Format the Hard Drive.....	57
	Replace Hard Drive.....	59

## PRINTERS:

Colored stripes on paper	Replace low ink tank.....	73
Wrong colors on paper	Flush ink with printer utility Software .....	75
White stripes on paper	Be sure to use “name-brand” ink.....	76
Entire page is faded	Test device on another computer .....	93
Strange printer noises	Check the data cable .....	122
Other strange behavior	Replace the cable .....	77
	Check the electricity.....	28
	Reinstall device Software.....	113
	Upgrade device Software .....	116
	Reset printer (contact tech support) .....	78
	Replace print head (if possible) .....	79
	Repair/Replace printer.....	80
	Mac Hardware problem.....	31

PROBLEM:	SOLUTIONS:	Page:
Other strange noises	Reset the PMU/SMC/SMU/PRAM .....	49
Macintosh overheating	Check for loose fan wire.....	81
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Check with new User account.....	29
	Hold Shift key at startup.....	43
	Check for Firmware update .....	91
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Fan/Mac Hardware problem.....	82
.....		
INTERNET ACCESS (HIGH-SPEED/BROADBAND):		
Slow Internet access	Reset Modem, Router and Mac .....	120
Pages don’t appear correctly	Run DiskWarrior .....	40
“Cannot find server”	Repair Permissions .....	99
	Trash Browser “.plist” file & “icons” .....	132
	Empty Browser Cache files .....	133
	Delete Browser Cookies .....	135
	Clear Browser History.....	137
	Reinstall Browser .....	138
	Update Browser .....	139
	Contact ISP support for problems .....	141
	Contact Router support for help.....	142
	Add more RAM/Memory.....	108
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X .....	70
	Modem Hardware problem .....	143

## 22 Problems & Solutions Chart 7 of 10

PROBLEM:	SOLUTIONS:	Page:
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### INTERNET ACCESS (DIAL-UP):

Slow Internet access	Check “Applications” folder for program ...	114
Pages don’t appear correctly	Reinstall Application .....	117
Some pages don’t appear	Update Application .....	118
Can’t access Internet	Reinstall Browser.....	138
“Cannot find server”	Switch to Broadband.....	119

.....

### WIRELESS DEVICE:

Erratic device behavior	Shutdown & Restart Mac & devices.....	83
Device won’t work	Isolate from interference .....	84
	Check device batteries .....	85
	Verify wireless card.....	86
	Check Software settings .....	88
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Test device on another computer .....	93
	Reinstall “Combo” update .....	109
	Downgrade Mac OS X.....	95
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
	Wireless Device problem .....	97
	Mac Hardware problem.....	31

.....

**PROBLEM:**

**SOLUTIONS:**

Page:

**WIRELESS NETWORK & BROADBAND MODEM:**

Connection won't work	Shutdown & Restart Mac & devices.....	83
Erratic network behavior	Isolate from interference .....	84
Device won't work	Check network settings .....	98
	Check the electricity .....	28
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Test device on another computer .....	93
	Verify wireless card.....	86
	Reinstall "Combo" update .....	109
	Downgrade Mac OS X.....	95
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
	Mac Hardware problem.....	31

**WIRED (ETHERNET) NETWORK & BROADBAND MODEM:**

Connection won't work	Shutdown & Restart Mac & devices.....	83
Erratic network behavior	Check network settings .....	98
	Check the electricity .....	28
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Check the data cable .....	122
	Replace the cable .....	77
	Test device on another computer .....	93
	Reinstall "Combo" update .....	109
	Downgrade Mac OS X.....	95
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70

PROBLEM:	SOLUTIONS:	Page:
<b>MONITOR:</b>		
No picture	Isolate from interference .....	84
Wrong colors	Trash “.plist” files.....	102
Faded colors	Check the data cable .....	122
Distorted picture	Hold Shift key at startup.....	43
Shifting picture	Check Universal Access .....	140
	Check the electricity.....	28
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Zap the PRAM .....	53
	Reset the PMU/SMC/SMU/PRAM .....	49
	Test device on another computer .....	93
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
	Monitor worn out.....	48
	Monitor Hardware problem .....	30
	Mac Hardware problem.....	31
.....		
CD or DVD doesn’t appear	Mount optical disc .....	64
	Trash Caches .....	101
	Trash “.plist” files.....	102
	Check with new User account.....	29
	Hold Shift key at startup.....	43
	Check for Firmware update .....	91
	Check for Repair Extension Program.....	90
	Reinstall “Combo” update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Mac Hardware problem.....	31



**PROBLEM:**

**SOLUTIONS:**

Page:

**USB & FIREWIRE DEVICES:**

Device won't work	Shutdown & Restart Mac & devices.....	83
Erratic behavior in device	Check Software settings .....	88
	Check the electricity .....	28
	Zap the PRAM .....	53
	Check for Firmware update .....	91
	Check for Repair Extension Program .....	90
	Test device on another computer .....	93
	Check the data cable .....	122
	Replace the cable .....	77
	Reinstall device Software.....	113
	Upgrade device Software .....	116
	Reinstall "Combo" update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70
	Downgrade Mac OS X.....	95
	Replace USB/FireWire device .....	72
	Mac Hardware problem.....	31

Trash won't empty	Force-empty the Trash.....	106
	Run DiskWarrior .....	40
	Repair Permissions .....	99
	Reinstall "Combo" update .....	109
	Archive and Install Mac OS X.....	111
	Update Mac OS X.....	94
	Erase and Install Mac OS X.....	70

Clicking sound	Check for Firmware update .....	91
	Check for Repair Extension Program .....	90
	Replace Hard Drive.....	59

**END OF CHART**

# 26 Fixing The Modules

Check the electricity .....	28
Check with new User account .....	29
Monitor Hardware problem .....	30
Mac Hardware problem .....	31
Verify RAM .....	32
Reset date and/or time .....	37
Replace the PRAM/Clock/Backup battery .....	38
Run DiskWarrior .....	40
Hold Option key at startup .....	42
Hold Shift key at startup .....	43
Monitor worn out .....	48
Reset the PMU/SMC/SMU/PRAM .....	49
• For the Mac mini (pre 2006) and iMac (2005) .....	50
• For the Mac Pro, Mac mini (early 2006) and iMac (2006) .....	50
• For the MacBook Pro (2006+) and MacBook (2006+) .....	51
• For the PowerMac G5 (2004 and 2005) .....	52
Zap the PRAM .....	53
Reset drive in System Preferences .....	55
Reset Boot-drive with OSX disc .....	56
Low-Level-Format the Hard Drive .....	57
Replace Hard Drive .....	59
Unplug USB and FireWire Hub .....	62
Mount optical disc .....	64
Remove the optical disc .....	66
Unplug all devices .....	69
Erase and Install Mac OS X .....	70
Replace USB/FireWire device .....	72
Replace low ink tank .....	73
Flush ink with printer utility Software .....	75
Be sure to use “name-brand” ink .....	76
Replace the cable .....	77
Reset printer (contact tech support) .....	78
Replace print head (if possible) .....	79
Repair/replace printer .....	80
Check for loose fan wire .....	81
Fan/Mac Hardware problem .....	82
Shutdown & Restart Mac & devices .....	83
Isolate from interference .....	84
Check device batteries .....	85
Verify wireless card .....	86

Check Software settings .....	88
Check for Repair Extension Program .....	90
Check for Firmware update .....	91
Test device on another computer .....	93
Update Mac OS X .....	94
Downgrade Mac OS X .....	95
Wireless Device problem .....	97
Check network settings .....	98
Repair Permissions .....	99
Trash Caches .....	101
• (also see “Trash .plist files” > “Files which can be safely thrown out”)	
Trash “.plist” files .....	102
• Files which can be safely thrown out .....	103
Force-empty the Trash .....	106
Add more RAM/Memory .....	108
Reinstall “Combo” update .....	109
Archive and Install Mac OS X .....	111
Reinstall device Software .....	113
Check “Applications” folder for program .....	114
Upgrade device Software .....	116
Reinstall Application .....	117
Update Application .....	118
Switch to Broadband .....	119
Reset Modem, Router and Mac .....	120
Check the data cable .....	122
Rebuild Mailbox .....	124
Reduce the number of messages .....	127
Change “Outgoing Server Port” to 587 .....	129
Trash “Envelope Index” (if IMAP) .....	130
Check ISP for troubleshooting .....	131
Trash Browser “.plist” file & “icons” .....	132
Empty Browser Cache files .....	133
Delete Browser Cookies .....	135
Clear Browser History .....	137
Reinstall Browser .....	138
Update Browser .....	139
Check Universal Access .....	140
Contact ISP support for problems .....	141
Contact Router support for help .....	142
Modem Hardware problem .....	143

## 28 Fixing The Modules

### Check the electricity

Sometimes the simplest things can be overlooked. If your Macintosh won't start, it could be because it's not getting any electricity. Here are some things to check...

- 1 - Some outlets have a wall switch associated with them. Turning ON the switch, turns ON the outlet. On a recent troubleshooting appointment, I learned that a wall switch can even control HALF of an outlet. The top half was working (a room-light was plugged into it) but the UPS^, which was connected to the bottom-half of that outlet, would beep every time I turned it ON. (See "GENERAL DOs AND DON'Ts" > "Use a UPS" for more information.)
- 2 - Check the building's fuse box to be sure a circuitbreaker hasn't been tripped.
- 3 - Plug a basic electric device, such as a lamp, into the outlet which supplies electricity to the Macintosh. If the light normally works but now will not light up, you can suspect there is something wrong with that outlet.
- 4 - If the Macintosh is connected to a surge protector or UPS unit, connect it to a different outlet. Most of these units have one or more lights, check the documentation for that unit and see if the the lights are indicating "no electricity", "not grounded", "unit not working", etc.

NOTE: Depending on how the electrical lines in a room have been connected (in the walls and at the fuse box), it's possible that HALF or ALL the outlets in the room are on the same electrical circuit. If the circuit is bad, and you use another outlet on the same circuit for testing, you won't have reliable feedback. So, if you're testing outlets and are not finding any that work, try the outlets in a different room or a different part of the building.

NOTE: If you're checking to see if the battery inside a UPS unit will provide enough electricity for the Macintosh and its peripherals, keep in mind that brand new UPS units must have a 8-to-16-hours, or more, to charge themselves to full capacity.

## Check with new User account

Sometimes it's difficult to isolate a problem. By setting up a new User account, you can quickly remove the influence of a corrupted (mixed up) "Home" account. Using a new User account will give you fresh, and un-corrupted, "Home" folder information, such as preference files (plist<sup>s</sup>) and System Preference settings. Here's how to set one up:

- 1 - Pull down the "Apple" menu and choose "System Preferences...".
- 2 - Click once on the "Accounts" icon.
- 3 - If these settings are locked, click the lock and enter your password.
- 4 - Click on the Plus Sign (+), located near the bottom-left corner of this dialog box.
- 5 - Fill out the information then click the "Create Account" button.

NOTE: There are different ways to "Log into" this account. One of them is to pull down the "Apple" menu, "Log Out" and then log back in.

When you first Log into this account it will be pure and FACTORY FRESH. (The more you use it, the more exposed it will be to possible IMPURITIES. So if you want to rely on this account for future testing, don't use it in between times.) When using this account, if the problem has disappeared, one or more items in your old "Home" account were corrupted. In this case, you may want to use this new one as your everyday account.

To transfer documents, photos, etc. to the new account, drag those items to the "Hard Drive" > "Users" > "Shared" folder. Doing so, will allow access to these items from any account on this Macintosh.

If you only want a specific account to have access to those items, drag them to the "Hard Drive" > "Users" > their account-name folder > "Public" > "Drop Box" folder. You won't be able to open this folder but you can drop any items into it and only that account user can view and retrieve them.

Once you've used the new account for a week or so, and have made sure all of your important settings and documents have been transferred from your old account, you can then delete your old account.

## 30 Fixing The Modules



### **Monitor Hardware problem**

Reaching this step means the other solutions in the list did not work. At this point, you should consider taking the Monitor^ to a repair shop. See “WHO TO TURN TO?” for more information.



### **Mac Hardware problem**

This entry in the Chart means you've exhausted the possibilities of how to solve the problem and should now suspect the Macintosh itself as having a Hardware (physical) problem. See "WHO TO TURN TO?" for the next step in your problem-solving adventure.

## 32 Fixing The Modules

### Verify RAM

When the Macintosh is turned ON (after being shut down) it performs a RAM (memory) test. If it encounters a problem, it will provide some feedback. (This test does not run if the Macintosh is simply restarted.) On Intel-based Macs the Screen^ will be black and the Power LED (the small light on the front of the Macintosh which slowly pulses when the Mac is in Sleep mode) will blink once each second. This indicates:

- The RAM module is physically damaged, or
- The wrong type of RAM is installed, or
- No RAM is installed.

Sometimes the startup test will think the RAM is reliable but the Macintosh cannot use it. When this happens, the Mac will:

- Display a gray Screen,
- Produce three tones, and
- Blink the Power LED three times, pause and repeat the blinking cycle until the Macintosh is turned OFF.

Here's what will happen (on non-Intel-based Macs). The Screen will probably be black and you will hear one or more beeps:

- 1 beep means no RAM is installed.
- 2 beeps means one or more RAM modules is incompatible.
- 3 beeps means none of the RAM modules are good.
- 4 beeps means (from Apple's Knowledgebase^ number 58442) "no good boot images in the boot ROM (and/or bad sys config block)"
- 5 beeps means processor is not usable.

In addition to the beeps, some Macintosh models will flash their Power LED the same number of times, plus one. (If it made 3-beeps, the LED will flash 4 times.) After a 5-second pause, the flashing will repeat. However, only one pattern of the initial beeps will be produced.

Here's what will happen on Intel-based Macs:

- Black Screen on Startup and the Power button light will blink once per second. This indicates no RAM is installed or the RAM does not meet the requirements for this Macintosh.



- Gray Screen on Startup, three beeps will be generated and the Power button will blink three times, pause and repeat. This indicates the RAM has passed the Power-On-Self-Test but still cannot be used by this Macintosh.

When bad RAM is suspected:

- 1 - Turn OFF the Macintosh.
- 2 - Open the Macintosh and reseal the RAM module(s). (Completely remove each module and then re-install it.)
- 3 - Turn ON the Macintosh. If the Macintosh still indicates “bad RAM”, replace one or more of its RAM modules with new RAM, the RAM which originally came with this Macintosh or RAM you’ve tested in another Macintosh.

NOTE: If you use RAM from another Macintosh, be sure it matches the specifications required by this Macintosh. For example, all iMac RAM is not the same.

NOTE: It’s always a good idea to keep your Mac’s original RAM — even if you buy extra RAM. Sometimes the most reliable RAM are those memory modules which Apple included at the factory. When bad RAM is suspected, using the original RAM is a good way to determine if the replacement RAM is the problem.

Although most RAM comes with a lifetime warranty, “generic” RAM will TYPICALLY “go bad” more often than “name-brand” RAM.

Basically, you’ll know if the RAM you are about to purchase is generic when you ask for the manufacturer’s name. If you are told “I don’t know” or “I can’t give out that information”, then it’s probably “generic” RAM. Some “name-brand” RAM companies are:

- |                     |              |
|---------------------|--------------|
| • Buffalo/TechWorks | • PNY        |
| • Crucial           | • SimpleTech |
| • Edge              | • Viking     |
| • Kingston          |              |

## 34 Fixing The Modules

It's possible for the Macintosh to have a RAM problem but not indicate there is one — no beeps, flashing LEDs or gray Screen. When this happens, it can cause one of the biggest troubleshooting annoyances you may ever encounter. Problematic RAM can cause problems which SEEM to be coming from just about any technology:

- Problem starting or restarting the Macintosh, or
- Problem waking the Mac from Sleep or putting it to Sleep, or
- Problem printing, or
- Problem sending or receiving eMail, or
- Problems while surfing the web, or
- Problems while opening or using various programs, etc.

When diagnosing RAM-related problems, your biggest clue as to where the problem is, will be the fact that all the problems will be erratic. However, if you keep testing the same programs and other functions in the same way, the problems may simply keep repeating themselves. So, be sure to test as many DIFFERENT things as you can:

- Try different programs,
- Put the Macintosh to Sleep, wait several seconds, then wake it up,
- Unplug and plug USB<sup>^</sup> and FireWire<sup>^</sup> devices while everything is ON. (They're designed for this function.)
- Print two or more pages of text. You may want to include one or more photos or some other type of graphic — with some printers, this will activate technologies which are different from those used to produce “text” (characters and words).

You just never know which function will re-trigger the problem. At this point, you're trying to trigger problems. In doing so, look for patterns. Compartmentalize the problems if you can. If the problems seem to keep changing, then put RAM at the top of your Suspect list.

If you think the problem is with one or more RAM modules, check the “System Profiler” program to see if RAM has been added to more than one memory slot. Apple's website, in their “Support” section, has information on how to physically access the RAM for most Macintosh models. Apple's website also has information on the various versions of Mac OS X and how much RAM each requires. Let's use

“Tiger”, Mac OS X 10.4, as an example...

- If one of the RAM modules is 256MB (megabytes) or larger, remove the other RAM module.
- Put the Macintosh back together.
- Turn ON the Macintosh.
- Test everything again. If the problems are still there, turn everything OFF, put the RAM module back and remove the other one. Put everything back together, turn ON the Macintosh and test everything again.

NOTE: USUALLY if RAM goes bad, it's probably the RAM module which DID NOT come from Apple. Because Apple certifies the RAM THEY install and sell, it will probably be more reliable than just about any other RAM you can buy. In other words, if the Macintosh was ORIGINALLY purchased with extra RAM, the RAM which was added at the factory by Apple may still be inside. (It doesn't matter which company sold the Macintosh — Apple or another.)

The Macintosh itself may inform you of bad RAM upon startup. Some versions of the “System Profiler” Software, have a status indicator for RAM. Both of these methods will probably provide more reliable feedback than any third-party (non-Apple) program. For example, several years ago, I started up my iMac one day and the Mac's Operating System<sup>^</sup> displayed an alert box on the Screen stating that one of my two RAM modules was bad. Since I owned “TechTool Pro” (among other things, a RAM diagnostic program by [www.micromat.com](http://www.micromat.com)) at the time, I decided to put it to some good use. I ran its Memory Test, so I would know which RAM module to remove and replace. (This Software has several different RAM tests. Some last a few minutes, while others can take several days to complete.) After almost 2-hours of testing the program informed me that the RAM was fine. I thought my iMac had made a mistake, so I shrugged off the “bad RAM” message. restarted the iMac and there it was again — the Macintosh was telling me at least one of the RAM modules was defective. So, I opened the iMac, removed one module at random, restarted and... no more “bad RAM” message. This was not the first time “TechTool Pro” had let me down. So now I knew I could no longer trust this Software and I have never used it since.

## 36 Fixing The Modules



NOTE: Apple's "Hardware Test" CD, which you receive when you purchase AppleCare, is really "TechTool Deluxe" and made by Micromat ([www.micromat.com](http://www.micromat.com)). Just because Apple includes this Software, doesn't mean it's any more reliable than the version I used.

## **Reset date and/or time**

If the Macintosh is showing the wrong date and/or time, resetting it won't solve any serious problems but it will give you some feedback as to the state of your Mac's PRAM^/Clock/Backup battery — it's been known by different names over the years.

To change the date and/or time:

- 1 - Pull down the “Apple” menu and choose “System Preferences...”.
- 2 - Click once on the “Date & Time” icon.
- 3 - If you cannot change any settings click the Lock icon (lower-left corner) and enter the proper Mac OS X password — this may not be the same as your eMail password.
- 4 - Make any necessary changes and be sure to set the proper Time Zone.

(See also “Replace the PRAM/Clock/Backup Battery”)

## 38 Fixing The Modules

### Replace the PRAM/Clock/Backup battery

(Known by these different names.)

Most Macs have this battery. (Some portable Macs have this battery and the one which keeps them running when it's not connected to electricity.) If you set the date and time to current settings, but they change after the Mac is shut down and restarted, then this battery needs to be replaced. Here are a few signs that the battery is becoming too weak to do its job:

- The time and date will be wrong whenever the Macintosh is started.
- The Macintosh may not be able to locate the printer.
- The Macintosh may display a Flashing Question Mark on start up.

**NOTE:** It's possible for the Flashing Question Mark to appear for other reasons. Reset the Mac's Startup Disk (see below), shut down the Mac, turn it back ON after 15-seconds or so and if the Flashing Question Mark appears again, it could be because the battery needs to be replaced.

When the battery is getting low, sometimes the Mac's date will revert to specific YEARS. When it does, this is feedback telling you the battery is depleted. Here are a few of those years:

- 1904
- 1956
- 1957
- 1969

To see the YEAR:

- Click once on the TIME, located at the top-right of the Screen^, or
- Pull down the "Apple" menu, choose "System Preferences..." and then click on the "Date & Time" icon.

**NOTE:** In some Macintosh models (such as the Mac mini and iMac G4) the PRAM^/Clock battery cannot be replaced by the User (that's you). For those models, take the Macintosh in to a qualified Apple technician.

These two Apple web pages provide information on which Macintosh models use which batteries:

- For old Macs:  
<http://docs.info.apple.com/article.html?artnum=11751>
- For newer Macs:  
<http://docs.info.apple.com/article.html?artnum=86181>

Different factors contribute to the depletion of batteries. One of these is the date the battery was MANUFACTURED. This is much more important than when the battery is PURCHASED. The PRAM/Clock/Backup battery can typically last 3- to 5-years. However, I've seen 1-year old batteries which needed to be replaced.

Even if a battery was manufactured recently, if it was stored in unfavorable conditions (too hot, cold, dry, wet, etc.) it will deplete faster.

**NOTE:** After replacing the battery, the Macintosh may not start. If this happens, press the **⌘** button ONCE. Pressing this button more than once within a 1-minute time-period, could cause serious problems. This Apple web page explains where the Macintosh G3, G4 and G5 “**⌘** buttons” are located:  
<http://docs.info.apple.com/article.html?artnum=86760#where>

(It doesn't look as though Intel-based Macs have a “**⌘** button”.) On different Macintosh models, this button has different names: “**⌘**”, “**SMC\_RST**”, “**SMU Reset Button**”, etc. (See “Reset the PMU/SMC/SMU/PRAM” for details.)

Once the battery has been replaced be sure to reset the Mac's Startup Disk... Follow these steps:

- 1 - Pull down the “Apple” menu and choose “System Preferences...”.
- 2 - Click once on the “Startup Disk” icon.
- 3 - Click once on the disk or folder you want the Macintosh to start up from.  
(This will typically be the “Mac OS X” folder.)
- 4- Close this dialog box.

## 40 Fixing The Modules

### Run DiskWarrior

DiskWarrior, by Alsoft ([www.alfsoft.com](http://www.alfsoft.com)), performs only one major function — using patent-pending technology, it fixes “Directory Structure^” problems.

Basically, the “Directory Structure” is the catalog of a storage device — Hard Drive, CD, DVD, Flash Drive, etc. and contains:

- The name of each file, folder, program, etc. which is stored on that disk,
- The START and END locations of where each item is physically stored on that disk,
- Whether the item has a custom icon, and much more.

Although we see colorful icons, representing files, folders and programs, the Directory is a detailed database which keeps track of a variety of attributes. Since most processes in the Macintosh must use the Hard Drive’s Directory, it’s very important to keep it free of problems. This is why you should run DiskWarrior as a part of your weekly or monthly maintenance AND any time you encounter a problem. It won’t solve every problem but it won’t hurt and it may help other troubleshooting go that much smoother.

DiskWarrior’s competition has been Micromat’s “TechTool Pro” and Symantec’s “Norton Utilities”. I’ve actually proven that these two programs can actually CAUSE problems. Maybe this is why Symantec no longer sells Norton Utilities for the Macintosh.

**WARNING:** The “Apple Hardware Test” disc, which you receive if you purchase Apple’s extended AppleCare warranty, contains Micromat’s “TechTool Deluxe” and can still cause problems if you run the “Volume Structure” feature.

If you don’t own DiskWarrior, you can use Apple’s “Disk Utility” program to POSSIBLY fix the problem. Although it’s not nearly as powerful as DiskWarrior, Disk Utility can sometimes work when nothing else is available.

The easiest way to check the “Directory Structure” of the Mac’s Hard Drive is to use Apple’s built-in diagnostic feature. To do this, simply start the Macintosh while



holding down the “Shift” key. (see “Hold Shift key at startup” for details.)

Here are the steps for repairing the Hard Drive’s Directory Structure with Disk Utility:

- 1 - Insert the Mac OS X “Install” disc into the Mac’s Optical Drive.
- 2 - Pull down the “Apple” menu and choose “Restart...”.
- 3 - Click the “Restart” button (or press the “Return” key on the keyboard).
- 4 - Immediately hold down the “c” key on the keyboard. This will instruct the Macintosh to start up from the CD (the optical disc). Keep the letter “c” held down until you see a small spinning GEAR on the Screen^. At this point, the Macintosh will start up from this CD or DVD. Although this disc is used to install Mac OS X, we will be using it for another purpose.
- 5 - If you are presented with a list of languages, simply choose your language and click once on the Forward (right-facing) arrow.
- 6 - Pull down the “Utilities” menu and choose “Disk Utility”.
- 7 - Using the left column, click once on the Hard Drive icon which represents your Mac’s “Boot” (or “Startup”) drive. If your Macintosh uses only one Hard Drive, click on the upper of the two Hard Drive icons.
- 8 - Click once on the “Repair Disk” button, located near the bottom-right of this window.
- 9 - Once this process is complete, pull down the “Disk Utility” menu and choose “Quit Disk Utility”.
- 10 - You should now be back at the “Installer” program. Pull down the “Installer” menu and choose “Quit Installer”. At this point, you may have to choose a Startup disk. Simply follow the one or two on-Screen instructions and the Macintosh will start up from its Hard Drive (and not the disc).

## 42 Fixing The Modules

### Hold Option key at startup

This technique will cause the Macintosh to search all Hard Drives, CDs, DVDs and networks to see if there are any Volumes^ which contain a valid Operating System^. Holding the Option key down during Startup is sometimes done when the Macintosh won't start from its normal drive and you need to indicate a different one (such as an external Hard Drive or DVD).

Procedure:

- 1 - Turn ON the Macintosh, and
- 2 - Immediately hold down the Option key on the keyboard.
- 3 - Keep this key down until you see a dark Screen^ with just a few icons on it.

Holding down the Option key while the Macintosh is starting, will display a dark, fairly blank Screen with only a few icons. The disk icons represent those devices (Hard Drive, CD, DVD) which the Macintosh recognizes as having an Operating System which it can start from. Simply click on the disk you want to start from, then click the right-facing arrow to continue.

If you insert a CD or DVD, click the left-curving arrow and the Macintosh will examine that disc to see if it contains a valid Operating System.

**NOTE:** If your Macintosh has a tray-loading Optical Drive, instead of a slot for the CD/DVD, hold down the mouse button when the Macintosh is started. Keep it down and the tray should automatically slide out.

## Hold Shift key at startup

Starting up a Macintosh with the Shift key held down is known as a “Safe Boot” and puts the Mac into “Safe Mode”.

A “Safe Boot” performs the following tasks:

- Checks the “Directory Structure^” of the startup Hard Drive.
- It loads (activates) only core (required) components of the Operating System^.
- Under Mac OS X 10.3.9 or earlier, the only Startup Items which are used (activated) are those provided by Apple.
- Under Mac OS X 10.4:
  - Δ only System-level fonts are activated.
  - Δ some font Caches^ are moved to the Trash.
  - Δ all Startup and Login Items are disabled.

Although some Macintosh functions cannot be used while in Safe Mode, it can still be a quick way to troubleshoot some problems. For example, let’s say the images on the Screen^ are not what they should be or a program will not launch or exhibits strange behavior, if the problem goes away while in Safe Mode, then the problem is being caused by one of the items which the Safe Boot turned OFF. This will probably mean an Apple-installed Operating System item is corrupted (mixed up) or a third-party (non-Apple) item is corrupted or is incompatible (has not been created according to Apple guidelines).

Procedure:

- 1 - Shut down the Macintosh.
- 2 - Wait at least 15-seconds and then turn ON the Macintosh, and
- 3 - Immediately after you hear the Startup Chime, hold down the Shift key on the keyboard.
- 4 - Keep this key down until you see the progress indicator — which looks like a spinning gear.

If the problem is with a third-party item, remove or un-install that item. If the problem is with an Apple item, download the Mac OS X COMBO update VERSION which matches what your Macintosh is currently using and install it. (In

## 44 Fixing The Modules

other words, if your Macintosh is using Mac OS X 10.4.10, download and install the 10.4.10 COMBO update.) This will replace LIKE-FOR-LIKE (bad pieces with good pieces) and IF the problem item is in the combo update, it will be replaced, if it's not (and there's no way to know about all the items within an update) then you should use a Mac OS X Install Disc and perform an "Archive and Install". Then, re-install that combo update. This will fix the above problem. (See "Archive and Install Mac OS X" for details.)

If a bad font is suspected, follow these steps:

- 1 - Open Apple's "Font Book" program. (It's in the "Applications" folder.)
- 2 - Click once on the "All Fonts" item, located at the top of the "Collection" column.
- 3 - Click once on any font in the "Font" column.
- 4 - Pull down the "Edit" menu and choose "Select All". This will highlight all the fonts.
- 5 - Pull down the "File" menu and choose "Validate Fonts".
- 6 - When this process has finished, pull down the menu located at the top-left of this dialog box and choose "Errors". This will display only those fonts which have serious problems. (You can also choose "Warnings".) Write down the problematic font names.
- 7 - If you want to remove (permanently delete) one or more fonts, click once on its checkbox, located to the left of that font's name. Then click the "Remove Checked" button.
- 7 - Close this dialog box.
- 8 - If you're not sure if a font should be deleted, you can simply turn it OFF. Using the "Font" column, click once on that font's name.
- 9 - At the bottom of the "Font" column, you should see two buttons: a Plus Sign (+) and a Checkmark button. Click once on the Checkmark button. In the alert that appears, click on the "Disable" button. You should now see the word "OFF" to the right of that font's name, in the "Font" column.
- 10 - Quit the Font Book program, restart the Macintosh and see if the problem is still there.

NOTE: To turn a font ON, click its name once and then click the button located below the “Font” column which is to the right of the Plus Sign (+) button. (The button we want has an outline of a square on it.)

If the Macintosh begins to start up but stops at a blue Screen<sup>^</sup>, it could be because of an incompatible or corrupted Login item. After restarting the Mac with the Shift key down, follow these steps:

- 1 - Pull down the “Apple” menu and choose “System Preferences...”.
- 2 - Click the “Accounts” icon.
- 3 - Click the “Login Items” Tab, at the top.
- 4 - Write down the items listed here. (We’re going to delete them, so you’ll need to remember them, in order to restore them later.) You could also take a Screenshot<sup>^</sup> of this information. (See “SAVE YOUR SETTINGS” for details.)
- 5 - Click once within the blue & white striped area. (It doesn’t matter if you click on an entry or not.) There should now be a thin, blue rectangle surrounding this area.
- 6 - Pull down the “Edit” menu and choose “Select All”.
- 7 - Click once on the Minus Sign (-), located below this area. This will delete all of the now-highlighted items in this list.

NOTE: If you cannot perform this task, click once on the Lock icon, located in the bottom-left corner of this dialog box. Follow its instructions and enter your Mac OS X password.

- 8 - Pull down the “Apple” menu and choose “Restart...”. Don’t hold down any keys, during this start up step.
- 9 - If the Macintosh starts up properly, go back to the “Accounts” section of “System Preferences” and add one of the deleted items. (Do this by clicking once on the Plus Sign (+), located at the bottom of the blue and white striped area.)

NOTE: If you want to add the “iCalAlarmScheduler” item, the most popular item, follow these steps:

- a - Open the “iCal” program. (It’s in the “Applications” folder.)
- b - Pull down the “iCal” menu and choose “Preferences...”.
- c - Click once on the “Advanced” icon, located at the top of that dialog box.
- d - Click once on the square which is located to the right of “Turn off alarms when iCal is not open”. (This will either add a checkmark or remove it.)
- e - Close this dialog box.
- f - Pull down the “iCal” menu and choose “Quit iCal”.
- g - Open “iCal” again.
- h - Pull down the “iCal” menu and choose “Preferences...”.
- i - Click once on the “Advanced” icon.
- j - Click once on the same square as in Step d. This will return this option to its previous state (checkmarked or not checkmarked).
- k - Close this dialog box.
- L - Pull down the “iCal” menu and choose “Quit iCal”.

Basically, we’re trying to WAKE UP iCal so it will re-install the “iCalAlarmScheduler”. Sometimes, opening the iCal preferences is all that’s needed. Other times, all of the above steps are required.

- 10 - Restart the Macintosh. If the Macintosh starts up properly, repeat Steps 9 and 10.
- 11 - If the Macintosh doesn’t start up properly, shut down the Macintosh by holding in its Power button for about 10-seconds.
- 12 - Wait at least 30-seconds, then turn ON the Macintosh and immediately hold down the Shift key.
- 13 - Go back to the “Accounts” section of “System Preferences” and click once on the item which was added last. This is the item which caused the problem.
- 14 - Click the Minus Sign (-), located at the bottom of that area. This will remove that one item. If this is an item you really need, contact the company that created it and see if there’s a more compatible version available.

For more information on this procedure, see this Apple Support page:  
<http://docs.info.apple.com/article.html?path=Mac/10.4/en/mh2235.html>

## 48 Fixing The Modules



### **Monitor worn out**

Even the best Monitors^ can wear out over time. If the colors on your Screen^ are faded, it COULD be because the Monitor itself is worn out. Sometimes repairing or replacing various components is more costly than buying a new or refurbished one. However, before jumping to this step, be sure to:

- Check the “Displays” settings in the Mac’s “System Preferences”. There may be a resolution setting or color adjustment which will help.
- Connect the Monitor to another Macintosh, in order to determine if the colors are truly faded.



## Reset the PMU/SMC/SMU/PRAM

Each Macintosh model uses one of these power management technologies...

- PMU^ (Power Management Unit) - (non-Intel-based Macs) PowerMac G4, PowerMac G5.
- SMC^ (System Management Controller) This is a chip on the main logicboard which controls all the power functions on Intel-based Macs: Mac Pro, Mac mini, etc.
- SMU^ (System Management Unit) PowerMac G5 (late 2004) and PowerMac G5 (late 2005).

The PMU/SMC/SMU tells desktop Macs: when to turn ON and OFF, wake from Sleep, when to idle, controls the fans and handles system resets from various commands, etc.

The PMU/SMC in portable Macs controls: backlighting (of the Screen^), Hard Drive spin down, Sleep, Wake from Sleep, some charging aspects, trackpad control and some input/output as it relates to the Mac's sleeping ability.

Resetting the PMU/SMC returns the Macintosh and NVRAM (Non-Volatile Random Access Memory) to their default^ settings and will probably force the Mac to shut down. This is normal. (At that point, you can press its Power button to turn it ON.)

**WARNING:** Resetting the PMU/SMC/SMU is not to be used to solve every type of problem. This procedure should only be performed as a last resort when the failure of the power management system is suspected.

**NOTE:** Resetting the PMU/SMC/SMU does NOT reset the PRAM^ on most models.

On older Macs, because there is almost a different Reset method for each model, please check Apple's online Knowledgebase^ ([www.apple.com/support](http://www.apple.com/support)) for details

## 50 Fixing The Modules

on how to perform this procedure. Here are some starting points:

- PowerBook 100 through PowerBook 5300 - Knowledgebase article: 58416
- PowerBook & iBook (released 1997 or later) - Knowledgebase article: 14449
- iMac G4 (Flat Panel) - Knowledgebase article: 95165
- For other models, Knowledgebase article 2238 explains how to reset the PRAM and NVRAM.

To reset the PMU on the Mac mini (pre 2006, 2 USB^ ports) and to reset the SMU on the iMac (Ambient Light Sensor, May 2005)

- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
- 2 - Disconnect all cables from this Macintosh. Be sure to unplug its electrical cord and Monitor^ cable (from the back of the Macintosh).
- 3 - Wait at least 10-seconds.
- 4 - Re-connect the electrical cord WHILE SIMULTANEOUSLY pressing and holding the Power button.
- 5 - Release the Power button.
- 6 - Press the Power button to turn ON this Macintosh.

NOTE: This procedure will also reset the PRAM. Once restarted, be sure to reset this Mac's date, time and other System Preferences, if changed.

Reset the SMC on these Macs:

- Mac Pro,
- Mac mini (released early 2006, 4 USB ports),
- iMac (released 2006)

- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
- 2 - Disconnect all cables from this Macintosh. Be sure to unplug its electrical cord (from the back of the Macintosh). Also, unplug the Monitor cable, if this Macintosh uses a separate Monitor.
- 3 - Wait at least 15-seconds then connect its electrical cord. At this time, you can connect the keyboard, mouse and Monitor cables.

- 4 - Press the Power button to turn ON this Macintosh.

Another option for the Mac Pro...If the above procedure doesn't work, here is an alternative method:

- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
- 2 - Wait 5- to 10-minutes for the internal components to cool.
- 3 - Unplug ALL external cables EXCEPT its electrical cord.
- 4 - Touch one of the metal PCI (horizontal) access covers on the back, in order to discharge any static electricity from your body. (If you walk around, be sure to discharge any static electricity before proceeding.)
- 4 - Unplug the electrical cord from the back of this Macintosh.
- 5 - Open and remove the Access Panel (the Mac's side wall). (This panel will not open unless you pull on the latch located on the back.)
- 6 - Press the SMC\_RST switch that is located slightly below and to the right of the row of diagnostic LEDs — use a NON-METALLIC, NON-CONDUCTIVE object, such as a wooden pencil.
- 7 - Replace the Access Panel.
- 8 - Press the Power button to turn ON this Macintosh.

To reset the SMC on these Macs:

- MacBook Pro (released February 2006 or later),
- MacBook (released February 2006 or later)

- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
- 2 - Disconnect the Mac's electrical cord (from the Macintosh) and remove its battery.
- 3 - Press and hold the Power button for 5-seconds and then release it.
- 4 - Re-insert the battery and then re-connect the electrical cord.
- 5 - Press the Power button to turn ON this Macintosh.

## 52 Fixing The Modules

To reset the SMU on these Macs:

- PowerMac G5 (late 2004),
  - PowerMac G5 (late 2005)
- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
  - 2 - Remove the electrical cord from this Macintosh.
  - 3 - Wait at least 2-minutes then connect its electrical cord.
  - 4 - Press the Power button to turn ON this Macintosh.

Another option for the PowerMac G5 (late 2005)

- 1 - Shut down the Macintosh. (If it's not responding, hold its Power button in for about 10-seconds. This should force it to shut down.)
- 2 - Touch one of the metal parts on the back, in order to discharge any static electricity from your body. (If you walk around, be sure to discharge any static electricity before proceeding.)
- 3 - Open and remove the Access Panel (the Mac's side wall). (This panel will not open unless you pull on the latch located on the back.)
- 4 - Remove the inner plastic air deflector.
- 5 - Remove the fan assembly, located immediately to the left of the processor module.
- 6 - Using a NON-METALLIC, NON-CONDUCTIVE object, such as a wooden pencil, press the SMU Reset Button, located on the main logicboard — under the lower bank of RAM slots. and about 2-inches to the right of their center.

NOTE: Only press this button once.

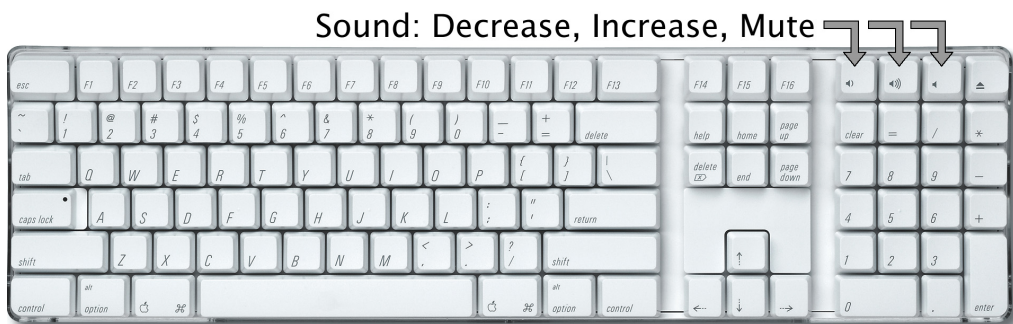
- 7 - Replace the fan assembly, air deflector and outer door.
- 8 - Press the Power button to turn ON this Macintosh.

## Zap the PRAM

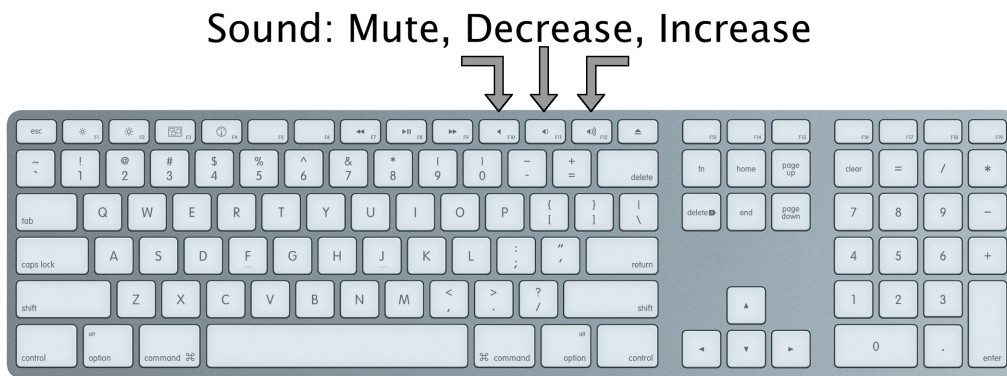
When the PRAM^ is “Zapped” the information being held in this special RAM (memory) will be flushed (erased). Then, when the Macintosh starts up, it will recreate this information from scratch. This new information will be current and uncorrupted.

Here are the steps to Zap the PRAM:

- 1 - You will need to hear the Mac’s “Startup Chime”. This is the sound the Macintosh produces when it’s turned ON. If you have external speakers connected to your Mac, make sure they are ready to relay the Mac’s sounds. if you previously set the Mac’s volume extremely low or turned it OFF, be sure the sound is loud enough to be heard. (The Mac’s sound can usually be increased by pressing the “Sound Increase” key on the keyboard, while the Macintosh is ON.)



Courtesy of Apple



Courtesy of Apple

## 54 Fixing The Modules

- 2a - If the Macintosh is already ON, pull down the “Apple” menu and choose “Restart...”.
- 2b - If the Macintosh is OFF, turn it ON.
- 3 - Immediately after you hear the Startup Chime, hold down these four keys: OPTION, COMMAND, P, R
- 4 - Keep them down until you hear at least three more Chimes. (If you hold them down longer, that’s fine. Over the years, Apple has told us to hold down these keys for different durations — 6-Chimes, 3-Chimes, etc. As far as I can remember, we’ve never had to hold them down for more than 6-Chimes.)
- 5 - When you release all four keys, the Macintosh will start up on its own. At that point, it will see that there is no information stored in the PRAM, so it will gather and store new data during this startup cycle.

## **Reset drive in System Preferences**

If you see a flashing Question Mark (?) when the Macintosh starts or the Macintosh has more than one Hard Drive and it starts up (Boots) from the wrong one, follow these steps:

- 1 - Pull down the “Apple” menu and choose “System Preferences...”.
- 2 - Click once on the “Startup Disk” icon.
- 3 - Click once on the icon which represents the Hard Drive (or Partition^) you want the Macintosh to start from.
- 4 - Click the “Restart...” button.
- 5 - You may be presented with a box asking you to confirm your choice. Simply indicate the appropriate response — which would be “Save and Restart”, in this case.

## 56 Fixing The Modules

### **Reset Boot-drive with OSX disc**

If your Macintosh has access to more than one startup disc (Hard Drive, CD, DVD, etc.) and the wrong one is used to start the Mac, try the following...

If you've already tried holding the Option key down at startup (see "Hold Option key at startup") but it didn't work or the Macintosh won't continually use that drive, follow these steps:

- 1 - Locate a Macintosh OS X disc which will start your Macintosh. (Some discs, such as the "Tiger" (Mac OS X 10.4) DVD, allow you to reset the startup disk.)
- 2 - Insert the disc and follow its instructions for starting the Macintosh from that disc. (Although it will seem like you're going to install, or re-install, Mac OS X, we are merely starting the Macintosh with this disc so we can access one of its functions.)
- 3 - When the Installer program appears, you may not be able to do anything until you select which language you want to use. Go ahead and do that.
- 4 - Once you are able to pull down menus from the menubar (next to the Apple in the upper-left corner), pull down the "Utilities" menu and choose "Startup Disk...".
- 5 - Follow the instructions and indicate which disk you would like this Macintosh to start from.
- 6 - Click the "Restart" button and the Mac will start from that drive.



## Low-Level-Format the Hard Drive

Although modern Hard Drives use “S.M.A.R.T.” (Self-Monitoring, Analysis and Reporting Technology), they don’t always report problems with BAD BLOCKS<sup>^</sup>. S.M.A.R.T. warns of predictable forms of impending Hard Drive failure.

Performing a “Low-Level” format” (thoroughly erase the Hard Drive) can sometimes repair bad Blocks. If a Block cannot be repaired, the Low-Level formatting process will try to copy any data in that area to another part of the Hard Drive and then mark the Block, so the Mac won’t use it in the future.

NOTE: A Low-Level format can take 2- to 5-hours or longer, depending on the speed of the Macintosh as well as the speed and capacity of the Hard Drive.

If the Low-Level format fails, or simply stops without mentioning that it was successful, then the Hard Drive is beyond fixing through this process. If you haven’t backed up your important information from this drive and you REALLY must have it, there are services which MAY be able to retrieve your data. One such service is “Drive Savers” ([www.drivesavers.com](http://www.drivesavers.com)).

NOTE: I have not used, and do not know anyone who has used, this company’s services.

The most drastic, but surest ways, to solve all Software problems is to erase the Mac’s Hard Drive, using a “Low-Level format”. EVERYTHING on the Hard Drive will be gone, so be absolutely sure you have backed up, OUTSIDE THE MACINTOSH, all important documents, photos, music, movies, bookmarks, Address Book entries, serial numbers for various programs, etc.

Another way to ERASE a Hard Drive is to use Apple’s “Disk Utility” program to perform a “Quick Erase”. This method takes about 30-seconds and the drive will APPEAR to be empty BUT everything IS still there — the Macintosh has simply been instructed to ignore all previous information. (You MUST still backup all important information before performing this function.)

## 58 Fixing The Modules

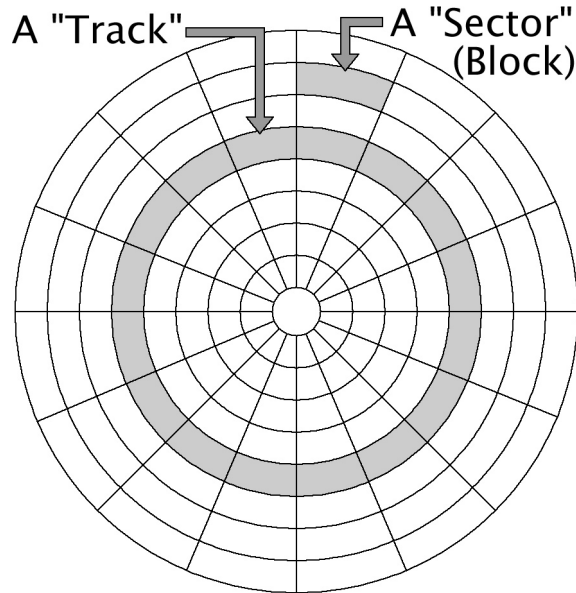
**NOTE:** You may not want to format the Hard Drive unless you've tried solving your Mac's problem in other ways and this is one of your last options.

**WARNING:** A low-level format taxes the Hard Drive much more than a "Quick Erase" and can take several hours to complete. It's possible that a low-level format will be the LAST STRAW for the Hard Drive and render it unusable before the formatting process is complete. Be sure to backup any important information BEFORE attempting a low-level format.

Here's how to perform a low-level format:

- 1 - Locate a Macintosh OS X disc which will start your Macintosh.
- 2 - Insert the disc and follow its instructions for starting the Macintosh from that disc. (Although it will seem like you're going to install, or re-install, Mac OS X, we are merely starting the Macintosh with this disc so we can access one of its functions.)
- 3 - When the Installer program appears, you may not be able to do anything until you select which language you want to use. Go ahead and do that.
- 4 - Once you are able to pull down menus from the menubar (next to the Apple in the upper-left corner), pull down the "Utilities" menu and choose "Disk Utility..."
- 5 - In the column on the left, click once on the upper-most Hard Drive icon.
- 6 - To the right, click once on the "Erase" Tab.
- 7 - Pop out the "Volume Format:" menu and make your choice. (Usually this will be "Mac OS Extended (Journaled)".
- 8 - Enter a name for this Hard Drive.
- 9 - If your Macintosh is capable of starting in Mac OS 9, you will have this option. Otherwise, you will not be able to make this selection. Click the "Erase" button when you're ready.
- 10 - Once this is completed, this Hard Drive will be empty. Your next step could simply be to install the Operating System^ which is on this CD or DVD. To do this, pull down the "Disk Utility" menu and choose "Quit Disk Utility".
- 11 - You should now be back at the Installer. Simply follow its instructions.

## Replace Hard Drive



When Hard Drives are manufactured they are formatted. This places “Tracks” (concentric circles) and “Sectors” (or “Blocks”, parts of a “Track”) on the surface of the “Platter” — the recordable hard disk, inside a Hard Drive. This is where Software is physically stored as it’s installed or copied onto the disk.

Hard drives are manufactured with some extra Blocks, which are set aside and not initially used. If a Hard Drive develops a bad Block, for whatever reason, performing a Low-Level format (erasure) will try to repair any bad Blocks it finds. If it can’t, it will:

- mark that spot as unusable,
- allocate one of the previously-unused Blocks^ as now being OK to use, and
- copy the information from the bad Block to the good one — if it can. (If it can’t, that information will now be CORRUPTED (mixed up) and needs to be replaced. If the information within that Block belongs to an Application^, that particular program will be corrupted and must be re-installed. If the information within that Block is part of a photo or other document, that file will be corrupted.

If you install a piece of Software or copy information from a CD, DVD, Flash Drive, etc., or even download something from the Internet or an attachment from an

## 60 Fixing The Modules

eMail message and a message appears informing you that there is a “disk problem”, most likely, the Hard Drive has one or more “bad BLocks”.

If you have performed a “Low-Level” format of the Hard Drive and it failed to complete its task, the Hard Drive should be replaced. (See “FIXING THE MODULES” . “Low-Level-Format the Hard Drive” for details.)

If you hear the sound of a ping-pong ball bouncing on a hard wooden table, the Hard Drive is going to stop working soon. In this situation, if you still need to backup your important information, DO NOT tax the Hard Drive any more than you have to. This means,

- DO NOT run any diagnostic tools on it.
- DO NOT install any Software.
- DO NOT empty the Trash.
- DO NOT start or shut down the Macintosh any more than you have to.
- DO NOT put the Macintosh to Sleep.
- DO NOT launch (open) any Applications, if you don’t have to.
- DO NOT open any folders, if you don’t have to.
- DO NOT copy any information TO it or FROM it — not any more than you have to.

At this point, the more activity you put this Hard Drive through, the sooner it will stop working. If you do need to backup important information, then it may be a good idea to plan your moves. If there are only one or two files on the Desktop^ that you need, then don’t poke around in other folders. If you know most of what you need is inside your “Documents” folder, plan your actions so you can go right to it and drag the entire folder to a Flash Drive, blank CD or blank DVD. If you have a Flash Drive or a second Hard Drive, those would be my first choices for this type of backup. In this situation, copying information to a blank CD or DVD may over-work your main Hard Drive, simply because the Mac may need to temporarily store a list on the Hard Drive, of those items it’s going to copy onto the optical disc.

Unless you’re comfortable opening and removing the Hard Drive from your Macintosh, you’ll need to seek the services of a qualified Macintosh “Hardware” technician.

If your Hard Drive needs to be replaced and you have information stored on it which you have not backed up, there are services such as “Drive Savers” ([www.drivesavers.com](http://www.drivesavers.com), 800-440-1904) that MAY be able to copy the data from your Hard Drive, place it onto a CD or DVD and send it to you.

NOTE: I have never tried Drive Savers and don't personally know anyone who has. This service is more expensive, and if you're considering it, don't have your data touched by any other means before sending the Hard Drive to the Drive Savers service because that could prevent their success. (Even they cannot guarantee success.)

If you decide you'd like the data saved, if possible, then let services such as iResQ do their normal transferring from the old drive to the new replacement. This may, or may not, prove successful.

If you have a Macintosh portable (MacBook, MacBook Pro) and you're not extremely concerned about retrieving the data from your Hard Drive (and your Macintosh is not under warranty), give “iResQ” a try ([www.iresq.com](http://www.iresq.com), 888-447-3728). We used their service to replace my wife Sylvia's Hard Drive in her iBook G4 in 2007. Their price was fair, service was good and the time involved was short.

## 62 Fixing The Modules

### Unplug USB and FireWire Hub

A USB^ or FireWire^ “Hub^” is a device which is about the size of a typical Apple mouse and usually contains 4 or 8 USB or FireWire connectors (ports). It will also have another USB or FireWire connector but this one will look a little different than the others. The USB or FireWire cable which plugs in here is also connected to one of the Mac’s ports.

The purpose of this type of hub is to allow you to connect more USB- or FireWire-based peripherals to your Macintosh, if the Macintosh runs out of ports.

A USB and/or FireWire hub can be your number one suspect when dealing with a few different Macintosh problems, including:

- Mac won’t start,
- Mac won’t shut down,
- Mac won’t Sleep,
- Mac won’t Wake from Sleep,
- Printer, scanner, external Hard Drive or other USB or FireWire peripheral won’t function properly, etc.

Over the years, I’ve had a few customers who experienced some of these problems and solved them by taking the USB hub out of the loop and connecting their USB peripherals directly to the Macintosh. Each time, they would tell me... “That hub has been connected the same way for more than 6-months with no problems.” Now it’s acting up and can no longer be used reliably. I’ve seen this happen with “cheap” as well as “name-brand” USB Hubs.

The USB and FireWire technologies are PLUG AND PLAY. This means, USB and FireWire devices can be connected and disconnected while the device and computer are ON. If you run out of USB or FireWire ports, simply remove the USB or FireWire cable of a device you aren’t using at that moment, such as the printer, and connect something you now want to use, such as a camera, Flash Drive, etc.

**WARNING:** Some devices, such as USB and FireWire Hard Drives and Flash Drives should be “Unmounted” before physically removing them. Do this by dragging their icon to the Trash. (The

information on that device will not be erased.) You can also do this by clicking once on the device's Desktop icon then pulling down the "File" menu and choosing "Eject...". After a few seconds, the device can be physically removed — usually, when its light(s) stop blinking. If you do not "Unmount" a Flash Drive or Hard Drive, before removing it, you risk losing any changes you just made to that drive or you could even lose ALL the information it is storing. If this happens, run DiskWarrior or Apple's "Disk Utility" repair feature on that drive. See "FIXING THE MODULES" > "Run DiskWarrior" for information on how to do this.)

## 64 Fixing The Modules

### Mount optical disc

Usually, when you insert a music CD, iTunes will automatically open and you can begin listening to those songs or import them into the program. If you insert a movie DVD, Apple's "DVD Player" will launch and you'll be presented with various viewing choices. Sometimes, however, when an optical disc is inserted, nothing happens — no programs instantly open and the disc's icon does not appear on the Desktop^. If this happens, here are some ideas which may get things working again...

Mounting the disc on the Desktop:

- 1 - Make sure you're in the "Finder". (Click on the "Finder" icon, located in the "Dock^".)
- 2 - Pull down the "Finder" menu and choose "Preferences..."
- 3 - In this dialog box, click the "General" icon, located in its "Toolbar" across the top.
- 4 - Make sure there is a checkmark next to "CD's, DVD's and iPods".
- 5 - If you also want to see an optical disc's icon in the "Sidebar^", click once on the "Sidebar" icon at the top and make sure there's a checkmark next to "Removable media (such as CDs)".
- 6 - Close this dialog box.

If you insert a CD or DVD and it still cannot be seen on the Desktop^, try this:

- 1 - Pull down the "Apple" menu and choose "System Preferences..."
- 2 - Click once on the "CDs & DVDs" icon.
- 3 - Make sure none of these menus show "Ignore". Here are the default^ settings for this dialog box...





**NOTE:** You may have to eject the disc and re-insert it, in order for the Macintosh to work with it properly. (For some ideas on how to eject an optical disc, see “FIXING THE MODULES” > Remove the optical disc.)

If the optical disc still cannot be seen or used, try this:

- 1 - Click once on the “Finder” icon, in the “Dock”.
- 2 - Open the “Applications” folder.
- 3 - Open the “Utilities” folder.
- 4 - Open “Disk Utility”.
- 5 - Within its window, look in the column on the left. If you can see the problematic CD or DVD, click its icon once. (If there are two icons, start with the upper one. If that doesn’t work, try the other.)
- 6 - Look in the “Toolbar”, located across the top of this window. If you can click the “Mount” icon check to see if the disc can now be used. If you cannot click “Mount”, eject the disc and see if it’s scratched. You may also want to try it in another computer or player. (See “FIXING THE MODULES” > Remove the optical disc” for details on how to remove an optical disc.)

## 66 Fixing The Modules

### Remove the optical disc

Here, we want to be sure the Macintosh doesn't have to deal with any more than it has to. So, in getting the Macintosh to a solid foundation level, we want to remove the optical disc (CD, DVD, etc.), if one has been inserted. This is especially true with copy-protected audio discs. (This can sometimes cause the Macintosh to leave you staring at a gray Screen^ on startup.)

If an optical disc is difficult to eject, be sure the Macintosh is not using any of the disc's information. This can usually be accomplished by QUITTING all open programs. Look in the "Dock^". Any icon which has a small, black triangle next to it is currently open and active in RAM (the Mac is using it). You cannot quit the "Finder" or "Dashboard". As for the other programs that are still being used:

- 1 - Place the Pointer^ over one of those "Dock" icons,
- 2 - Hold down the mouse button and a menu will appear. Choose "Quit".
- 3 - If that icon begins to bounce, it's telling you it requires your attention. So click the icon once and you'll probably be presented with an alert box asking if you want to save any changes you made. Make the appropriate choice then repeat these steps until all the black triangles have disappeared (except next to "Finder" and "Dashboard").

NOTE: Some CDs and DVDs automatically activate one of their included programs, when inserted. If you suspect this is what has happened and you cannot quit the program or eject the disc, hold down the mouse button while Restarting the Mac (see "Use the mouse button" below).

There are several different ways to eject an optical disc:

- Press the Eject key on the keyboard.
- Drag the disc icon to the Trash.
- Use the menubar menu:
  - 1 - Click once on the disc icon.
  - 2 - Pull down the "File" menu and choose "Eject".
- Hold down the Command (Apple) key and touch the letter "e".
- Use the Contextual menu:

- 1 - Place the Pointer over the disc icon.
  - 2 - Hold down the Control key on the keyboard.
  - 3 - Hold down the mouse button. At this point, a (contextual) menu will appear.
  - 4 - Choose “Eject”.
- Use the mouse button:
    - 1 - Restart the Macintosh. (If the Macintosh is already OFF, you can simply turn it ON.)
    - 2 - Immediately hold down the mouse button and keep it down until the disc is ejected. (Depending on the state the Macintosh is in, this shouldn't take more than 45-seconds.)
  - Use “Disk Utility”:
    - 1 - Click once on the “Finder” icon, in the “Dock”.
    - 2 - Open the “Applications” folder.
    - 3 - Open the “Utilities” folder.
    - 4 - Open “Disk Utility”.
    - 5 - In this window, look for the CD or DVD's icon in the left column. If there are two indented icons, click on the top one. (If this doesn't work after Step 6, click on the other one and then repeat Steps 5 and 6.)
    - 6 - Across the top of this window is its “Toolbar”, click the “Eject” button.
  - Use “iTunes”:
    - 1 - If the “iTunes” icon is in the “Dock”, click it once. If it's not, click on the “Finder” icon, in the “Dock”. Then open the “Applications” folder and then open “iTunes”.
    - 2 - In the iTunes window, you should see an “Eject” button. This will look similar to the “Eject” button which is located in the upper-right corner of most Apple keyboards — a solid triangle with a line under it. Depending on the version of iTunes, this button may be in the upper- or lower-right of that window.

## 68 Fixing The Modules

- Use a paperclip:
  - 1 - Whether CDs are inserted into the Macintosh via a tray or slot, most (not all) Macintosh optical drives have a tiny, paperclip-size hole, which can be seen from the outside. Locate this hole.
  - 2 - Find a paperclip. (The 2-inch kind work best.) Pulling on one of its ends, bend it out so the first curve is straight... or close to it.
  - 3 - With the Macintosh ON, carefully insert the straightened end of the paperclip into the tiny hole on the Mac's optical drive. Keep the paperclip straight out from the hole and slowly push it in. At around 1-inch, you should feel some resistance. Pushing another eighth ( $1/8$ ) to a quarter ( $1/4$ ) inch more should do it.

**WARNING:** If you're not comfortable doing this, then don't. Remember, you're inserting a piece of metal into a delicate electronic device which still has electricity flowing through it! This may be a good time to call in an expert.

## Unplug all devices

Sometimes a Macintosh can be affected by devices which have been working flawlessly for a long time. When diagnosing a computer problem, it's always a good idea to get specific modules to a PURE or FUNDAMENTAL state before starting to troubleshoot the situation. One way of doing this is to disconnect ALL the cables connected to the Macintosh. This includes:

- Keyboard,
- Mouse,
- Telephone cable,
- Ethernet^ cable,
- USB^ Hub^,
- FireWire^ Hub,
- EXTRA Monitor^, if one is connected,
- EXTRA Hard Drives, if any are connected,
- Printer,
- Scanner,
- Flash Drive,
- Camera, etc.

NOTE: Most of the time, you can leave the keyboard and mouse connected. However, there are times when you really must be sure that the existing problem is not related to ANYTHING connected to the Macintosh. In this situation, also disconnect the keyboard and the mouse. Let's say the Macintosh won't start. You disconnect the keyboard and mouse, along with everything else, and now the Macintosh starts. At this point, if your Macintosh will shut down, by holding its Power (ON/OFF) button in for 10-seconds, go ahead and shut it down. If this doesn't work, connect the mouse directly to the Macintosh, pull down the "Apple" menu and choose "Shut Down...".

If the problem goes away when the Macintosh is turned ON, shut it down and connect one device. Then turn ON the Macintosh and see if the problem is still there. Keep repeating this until the problem shows up again. At that point, shut down the Mac, disconnect everything again and only connect the suspicious device. Turn ON the Macintosh and see if the problem still exists.

# 70 Fixing The Modules

## Erase and Install Mac OS X

**WARNING:** This procedure will erase (permanently remove) EVERY file, folder, program and photo, as well as the Operating System^ (Mac OS X), from the Hard Drive. Be ABSOLUTELY SURE you have backed up, OUTSIDE THE MACINTOSH, any important items you would like to keep. (See “MAINTENANCE” > “Backup Your Work” for more information.)

Unless you’ve purchased a newer version of the Operating System than the one which came on your Mac’s Hard Drive, use the CDs or DVDs that came with your Macintosh.

This method erases the Hard Drive and installs a fresh copy of the Operating System.

- 1 - Insert your Mac OS X disc and open it (double-click its icon).
- 2 - Follow the instructions. (This usually means you should double-click on something called “Install OS X” or “Start Here”, etc.) You may have to enter your Mac OS X password. The Macintosh should then Restart.
- 3 - You should now be in the Installer program. Work your way through the Installer’s dialog boxes. When you come to a button called “Options”, click it once. This will provide you with a few choices. One of them will be “Erase and Install”. Select it.
- 4 - Click the “Continue” button.
- 5 - Continue through the Installer program and follow its instructions. When it’s finished, the Macintosh will Restart and you will be in the Setup Assistant — where you’ll need to enter various bits of information, in order for the Macintosh to be configured to your needs.
- 6 - Once this is complete, your Macintosh will start up on its own. At that point, if you want a higher version of Mac OS X, visit Apple’s website, click on the “Support” link at the top and then click on “Downloads” (about half-way down, in the center of that page) and download the “Combo Update” for the version you want to end up with.

NOTE: If you're going to install a newer version of Mac OS X you may want to test your Macintosh before doing so. If the problem still exists, the Operating System may not be the cause. So look for the problem in another area (MODULE) and fix THAT.

This is the most extreme method of installing the Operating System but it's also the surest way to fix EVERY "Software" problem the Macintosh may have. Once this installation is complete, if the Macintosh experiences any immediate problems, they will most-likely be caused by "Hardware".

## 72 Fixing The Modules

### **Replace USB/FireWire device**

At this point, the other troubleshooting suggestions have not solved the problem. If you have access to another similar USB^ or FireWire^ device, use that one instead of the one you suspect as having a problem. In other words, if the printer is acting up and you have another one, or know a friend or neighbor who will lend you one temporarily, connect that one to the Macintosh. If the problem goes away, the problem was probably in the old device. If it's still under warranty, contact the manufacturer and see if they will exchange or repair it. If it's not under warranty, give it to someone who would like to have it for parts or dispose of it properly and buy another one.

If the problem still appears, while the other device is connected to your Macintosh, the problem is PROBABLY not within the device. So, retrace your steps and look closer at these areas:

- Electricity, including the electrical cord,
- The cable which connects the Macintosh to this device,
- The device's Software, in the Macintosh, or settings within the Macintosh which could affect the function of this device,
- The Mac's Operating System^.



## Replace low ink tank

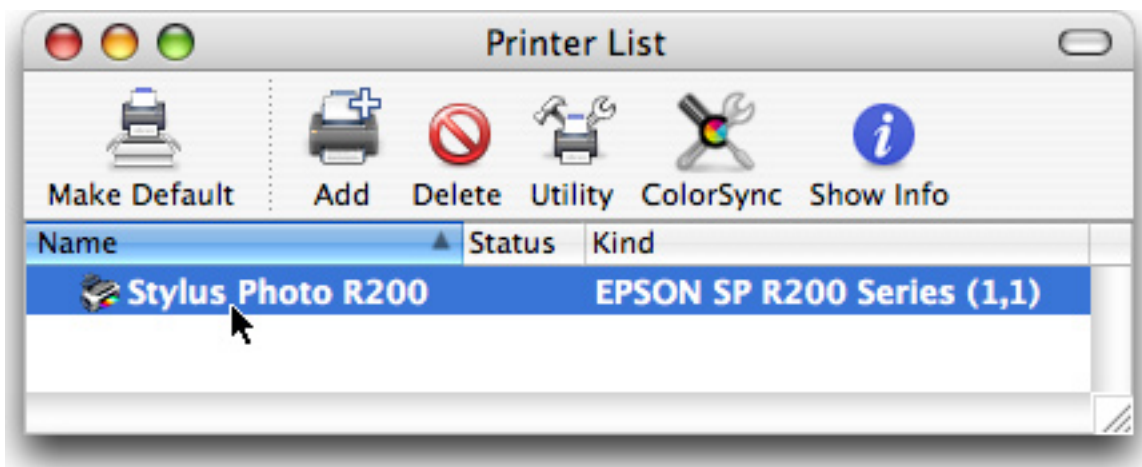
If your printer is producing stripes on the pages you print out, it could be that one or more ink tanks are low.

Today's printers usually display a specific light or flash a certain light pattern if an ink tank needs to be replaced. If this isn't the case with your printer or if you simply want to know how much ink remains in those ink tanks, use the printer utility associated with your printer — if one is available.

Since it's not easy to simply SEARCH for this program (because Spotlight won't look in some of the deeper System folders, where this program resides), here are two ways (marked "A)" and "B)") to determine if such a program is stored on the Hard Drive:

A)

- 1 - Click once on the "Finder" icon, which is located in the "Dock^". (This brings the "Finder" to the front and opens a window, if none were already open.)
- 2 - Navigate to the "Applications" folder.
- 3 - Open the "Utilities" folder.
- 4 - Locate the program called "Printer Setup Utility". (Depending on the Operating System version, this program may have a slightly different name — such as "Print Center".)
- 5 - Launch this program (double-click its icon)
- 6 - In the dialog box that appears, click once on the name of the printer.



## 74 Fixing The Modules

- 7 - Above the printer's name, you should see a row of icons. (This is the "Tool-bar".) Click once on the icon labeled "Utility". If this icon is GRAYED OUT (disabled) and cannot be clicked, move on to method "B)" below.
- 8 - The printer's utility program should now appear on the Screen^. Follow its instructions for checking the ink tank levels.

### B)

- 1 - Click once on the "Finder" icon, in the "Dock".
- 2 - In the window that appears, click on the Hard Drive icon. (We want to be at the main level of the Hard Drive, seeing its first-level of contents.)
- 3 - Open the folder called "Library".
- 4 - Open the folder called "Printers".
- 5 - If you see a folder with your printer's brand as the name, open it. (The folder would be labeled "Canon", "Epson", etc.) If you don't see such a folder, this printer may not have the utility program we are looking for.
- 6 - Inside of this folder, you may find several items. Look for a folder called "Utility" or "Utilities". If you find such a folder, open it. If you don't move on to step 6.
- 7 - Look for an Application^ which has a title such as "BJ Printer Utility", "Epson Printer Utility", etc. If you find such a program, you may want to place an "Alias^" of it into the "Dock". (Just drag its icon to the Dock, move it to a location where the Dock items separate, then release the mouse button and an Alias will automatically be placed into the "Dock".)

If you still cannot locate your printer's utility program, check the manufacturer's website.

If an ink tank-Monitoring program isn't available, look at one or more recently printed pages. The missing color is the ink tank which should be replaced. For example, if your pages only contain black text and you see white, horizontal stripes through some of the words, you should replace the black ink tank.

## Flush ink with printer utility Software

If the text or images appear faint or striped, it could be because the ink has dried in the tiny nozzles and tubes within the printer. As Ink jet printers evolve, each new generation produces smaller and smaller dots on the page. This gives the printer higher resolution, which allows it to create even better-looking images. This also means the manufacturer has to make the already-tiny ink nozzles and tubes even smaller. Since ink jet ink is in liquid form, these printers need to have their ink system flowing at least once a month, to keep things from drying out.

If you suspect the ink is dried, you could FLUSH the ink system before replacing one or more ink tanks. This procedure should be similar for different printer brands but if you cannot find the printer's utility Software in the "Applications" folder, follow the steps in "FIXING THE MODULES" > "Replace low ink tank".

After flushing the ink system, the same program should allow you to print a test page. Go ahead and do this. If you can't, print out a photo, which has a wide variety of colors. The photo doesn't have to fill the page — filling a quarter of the page should work fine. If you still see stripes, flush the ink system again.

**NOTE:** Sometimes it takes more than two or three flushings to clear the ink system. If you were going to throw one or more of the ink tanks out anyway, there's nothing to lose. However, you should keep in mind that all printers have an ink Overflow Tank. Whenever too much ink flows through the system, it's deposited onto a pad or sponge. This, in turn, drips into a tank. It will take quite a while (perhaps YEARS) for this tank to become so full that the printer could no longer be used, but you still want to use restraint when flushing. If the Overflow Tank does fill up, you'll have to have a printer technician empty it or you'll have to purchase a new printer. (Be sure to dispose of your old printer properly.)

## 76 Fixing The Modules

### **Be sure to use “name-brand” ink**

Always use “name-brand” ink. I’ve had more than a few customers, over the years, who tried to save money on ink and ruin their printer in the process. Although there are companies which offer low-cost ink or ink-refill kits, it’s been my experience that it’s smarter to spend the extra money and buy the printer manufacturer’s ink.

This is especially true if the low-priced ink has been REFORMULATED or OFFERS SHARPER COLORS or BETTER QUALITY PRINTING. The system inside an ink jet printer which carries the ink from the tank to the paper consists of extremely tiny nozzles, tubes and pumps. If the ink does not meet the specifications set forth by that printer’s manufacturer, it’s possible that it could introduce particles or chemicals which can harmfully affect the printer.

## Replace the cable

Did the cat nibble on it? If you have a pet, which likes to chew on things, replace the cable and see if that solves the problem. Even if you don't have a pet, USB^, FireWire^ and Ethernet^ cables have thin, delicate wires inside the protective outer layer. If something heavy has been sitting on this cable or if you have used a screwdriver to tuck it along the edge of the floor or have otherwise crimped it, chances are it will not work properly. The most common USB and FireWire cables are known as "A/B" cables. This type has a different size and shape connector on each end. If you have another such cable, even if it's already being used on another device, use it to connect the device you're having problems with, to the Macintosh. This will tell you whether or not the cable is at fault.

Cable length... In the case of USB cables LONGER is not better. Actually, with most computer cables, SHORTER is better. (The further information has to travel through a cable, the higher the risk of SIGNAL DEGRADATION — the computer and device won't HEAR every word the other is saying. There's also a risk of long cables being interfered with by other signals in the area — such as radio, television, wireless networks, electrical storms, etc. A 10-foot USB cable is probably the longest you should use. Try to stay with 6-foot or shorter.

## 78 Fixing The Modules



### **Reset printer (contact tech support)**

Modern printers contain their own computers. Since they only want to be turned ON and OFF by their Power button, electrical fluctuations can confuse them.

If you leave a printer ON all the time and the electricity goes OFF, even for a split-second, a printer can become MIXED UP and may need to be reset. Most printer manufacturers build-in a way to do this but since this technique can be different for each model and brand, it's best to contact the printer manufacturer's tech support department for information on how to do this.



### **Replace print head (if possible)**

In most printers, the “Print Head” contains some circuitry as well as the nozzles which spray ink onto the paper. This technology can wear out over time. Certain printer models allow you to replace the print head, others do not. If the text and images being printed by the printer seem faint or are lighter than previous print outs, replace the print head, if possible.

## 80 Fixing The Modules



### **Repair/replace printer**

If you've tried all other troubleshooting avenues, it's possible that this printer needs to be repaired or replaced.





### **Check for loose fan wire**

If the Macintosh is overheating or shuts down by itself, after being ON (and getting hot) after a while, the problem could be because a connector between a circuit-board and a fan may have come loose.

If your Macintosh can be opened, and you're comfortable doing this, make sure all fan wires are firmly connected.

## 82 Fixing The Modules



### **Fan/Mac Hardware problem**

If the Macintosh is overheating or shuts down by itself, after being ON (and getting hot) after a while (and the fan connectors weren't loose), there could be a problem with the fan itself or another type of Hardware problem within the Macintosh. If this is the case, you may want to seek the assistance of a Macintosh Hardware technician.

## Shutdown & Restart Mac & devices

Sometimes the information stored in RAM (memory) can become corrupted. This does not necessarily mean the RAM itself is BAD. Although Mac OS X has “Protected Memory”, there are times when a complete shut down will clear out any calculations and device information it no longer needs to keep track of.

NOTE: A “Restart” can retain some information stored in the Mac’s RAM, as well as information it’s keeping track of in a Cache^ file on the Hard Drive. This is why I am recommending a complete SHUT DOWN of the Macintosh, as a troubleshooting method.

Whenever you shut down the Macintosh, knowing you’re going to turn it back ON right away, be sure to wait at least 15- to 30-seconds before starting it back up again. This will give the Macintosh time to perform various housekeeping tasks on Shutdown as well as time for the fan(s) and Hard Drive to spin down and stop. If you listen, you may be able to hear the Mac’s internal noises winding down and stopping.

If you are experiencing problems with a device (printer, scanner, external Hard Drive, etc.), go ahead and shut IT down as well. Then, after all motors, noises and lights have stopped, turn ON the device(s) first and then turn ON the Macintosh.

## 84 Fixing The Modules

### **Isolate from interference**

When working with a wireless connection, the technology itself can sometimes be a bit quirky (not doing what it's supposed to). Sometimes however, outside interference can cause problems with a wireless device or Internet connection.

If you suspect outside interference to be the cause of a wireless problem, especially if everything was working previously, try to isolate or shield the wireless components. Other wireless signals can intersect with your computer's and/or device's (printer, scanner, etc.) wireless connection and cause the printer to produce a garbled page (or no page at all), a web page to partially appear, etc.

If you can move the computer or the device, to isolate it, you may be able to move it away from the interfering signal's path and solve the problem. Otherwise, you may be able to shield the computer or device by placing a sheet of aluminum foil, copper or other metal between the device and the interfering signal. Metal can dissipate a wireless signal across its surface. Of course, you'll need to be sure you don't block the signal you want your Macintosh and other devices to use.

## Check device batteries

Wireless devices, such as keyboards and mice, usually have batteries which need to be replaced or recharged. If a keyboard, mouse or other wireless device is not working or not working properly, check its battery.

**WARNING:** If the wireless device uses rechargeable batteries, simply recharge them if you can. If you replace rechargeable batteries with non-rechargeable batteries, DO NOT attach the device to a recharging unit! This will damage the batteries, may also damage the device and could possibly start a fire!

## 86 Fixing The Modules

### Verify wireless card

Wireless DEVICES typically use “Bluetooth” technology and wireless NETWORKS (communication between computers) usually use “Wi-Fi” technology — which is sometimes referred to as the number: 802.11a, 802.11b, 802.11g, 802.11n, etc.

No matter which technology you are troubleshooting, there must be wireless capability within at least two devices, such as the computer and Printer or Modem and computer or Keyboard and computer, etc. Read the information on the device’s packaging, or visit the manufacturer’s website and look up the product’s specifications, in order to be certain the device in question really can communicate wirelessly.

To learn whether the Macintosh has wireless capability, follow these steps:

- 1 - Pull down the “Apple” menu and choose “About This Mac”.
- 2 - In the window that appears, click the “More Info...” button. This will launch Apple’s “System Profiler” program.
- 3a - If you’re verifying wireless DEVICES:  
Using the column, which runs vertically down the left side, click once on “Bluetooth”.
- 3b - If you’re verifying a wireless NETWORK:  
Using the column, which runs vertically down the left side, click once on “Air-Port Card”.

**NOTE:** When selecting either of the above technologies, if the right side of that window shows “No information found”, it means this Macintosh does not have that capability or the technology is not recognized by this Macintosh. This later reason could be because some part of the Mac’s Hardware is damaged, the wireless card is damaged or the wireless card is not seated properly.

Bluetooth technology is accomplished by connecting a small device, an “Enabler”, (about the size of a double “A” battery) to the USB port or by having this technology included at the factory as part of the Mac’s main logicboard. Although it’s not possible to reseal a component which is soldered to the logicboard, if your Macintosh is using a Bluetooth “Enabler”, which is connected to the USB port...

- 1 - Shut down the Macintosh,
- 2 - Turn OFF the USB device,
- 3 - Connect the Bluetooth “Enabler” to a different USB port, if possible,
- 4 - Turn ON the USB device. (Wait at least 15-seconds, for it to reach its “Ready Mode”.)
- 5 - Turn ON the Mac.

As for Wi-Fi technology, this may also come pre-soldered to the logicboard but in earlier Macintosh models, this technology was added by Apple or the User (you) as an AirPort card. In this case, if you are comfortable opening up your Macintosh (shut it down first), you could disconnect the card’s antenna wire, remove the card and re-insert (reseat) it — and, of course, re-attach the antenna.

If you can remove the Bluetooth “Enabler” or Wi-Fi card, connect it to a different Macintosh and see if it works. This is one way to test whether the technology in that small package is still working properly.

## 88 Fixing The Modules

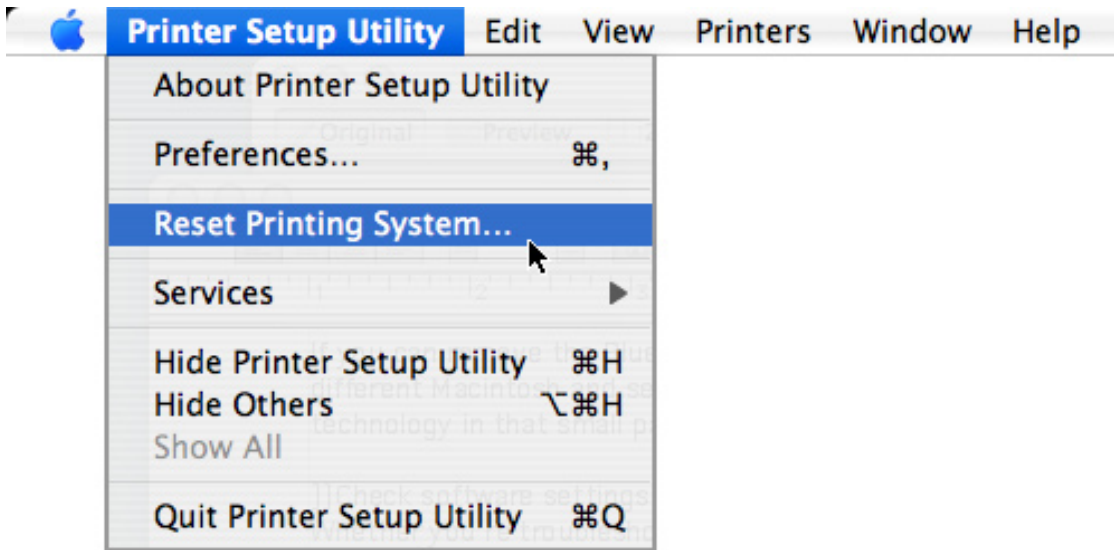
### Check Software settings

Whether you're troubleshooting a USB^, FireWire^ or Wireless device, they sometimes have settings, which you can change within the Macintosh to alter their performance. The QUIRKINESS you are experiencing with one of these devices can simply be due to a change in one or more settings — either by you or because of corrupted (mixed up) Software.

Here are a few common devices and the Software which can affect their performance...

Device:	Software:	Settings:
Camera	"Image Capture"	Determines which program opens when a camera or scanner is connected or activated.
Keyboard	System Preferences	Delay before repeat, Repeat speed.
Mouse	System Preferences	Tracking speed, Double-Click speed.
Printer	"Page Setup"	Margins, page rotation and page size.
Printer	"Print" dialog box	Color change, print quality, number of copies, sequential print out, reverse sequential print out, print speed, etc.
Printer	"Print Center", and "Printer Setup Utility"	Sometimes these settings can become corrupted (mixed up). If this is suspected, pull down the "Print Center" or "Printer Setup Utility" menu and choose "Reset Printing System...". (You will then have to "Add" the printer again but this may clear up the problem.)





NOTE: The following devices don't usually have any extra Software associated with them and, therefore, there are usually no settings in the Macintosh which can affect their basic function:

- External Hard Drive
- Hub^ (both the USB and FireWire types)

If you change the device's Software settings but still experience problems:

- 1 - Locate the ".plist" (preference) file associated with that device.
- 2 - Back it up to a CD, external Hard Drive or Flash Drive. (This simply makes a COPY of that file and leaves the original in its current location.)
- 3 - Drag the original to the Trash.
- 4 - Restart the Macintosh. (This makes sure the Macintosh isn't REMEMBERING the old settings. Once Restarted, the Macintosh will, at some point, create a new, un-corrupted ".plist" file.)
- 5 - Empty the Trash.
- 6 - Check to see if the device is still having the same problem.

NOTE: If there are unexpected results or you find too many changes, because the ".plist" file was deleted, simply drag the version you backed up and return it to its original location. Then Restart the Mac — so it will start using this file.

## 90 Fixing The Modules



### **Check for Repair Extension Program**

Once in a while, Apple will determine that a particular problem should still be address even after the Mac's warranty runs out. In this situation, Apple adds that Macintosh, which is within a certain range of serial numbers, to a special "Repair Extension Program". Check this Apple web page to see if your Macintosh is listed and the details for solving the problem:

[http://www.apple.com/support/exchange\\_repair](http://www.apple.com/support/exchange_repair)

## Check for Firmware update

Computers and some peripherals, such as broadband (high-speed) Modems, Routers, etc., are manufactured with the ability to have their “Firmware” modified. Firmware is the Software within a silicon chip. (Software, or a “Program”, is a set of instructions which offers, and can control, one or more functions.)

Sometimes the foundation level of the technology, within the computer or peripheral, needs to be modified. Because the change needs to be made WITHIN a computer chip, the manufacturer could simply make you buy another one of their products. Instead, they allow for changes in technology and provide you with (usually free) Software which will modify the device’s Firmware. Check the product manufacturer’s website to see if there is an update to that device’s Firmware.

When checking to see whether the Mac’s firmware needs to be updated, here are two sources which may help:

- Check the built-in “Software Update”: Pull down the “Apple” menu and choose “Software Update”. It should then automatically go out to Apple’s website and determine whether or not your Macintosh needs an update. If it does, the required updates will appear in a list. Click the “Install” button to begin.

**NOTE:** Sometimes the “Software Update” doesn’t show all the updates your Macintosh needs. So after installing the listed updates, go back and have “Software Update” check for more.

- Check the “MacTracker” program: This free program provides a lot of information about every Macintosh ever made. Look up your specific model and it will state whether or not it needs a firmware update. To download a copy of MacTracker, visit [www.mactracker.ca](http://www.mactracker.ca)

**WARNING:** INCORRECTLY MODIFYING FIRMWARE CAN RENDER THE DEVICE TOTALLY USELESS! Even though Firmware is “Software” and you may have installed many different types of programs in the past, “Firmware” is a bit different. It must be inserted into one or more chips in a very specific way. Because

of this DO NOT ASSUME YOU KNOW HOW TO INSTALL FIRMWARE! Be sure to download the correct Firmware for the specific device you want to modify — check and double-check these facts! Then, be sure to follow the manufacturer’s instructions when performing the installation. Because some Firmware modifications require a computer Restart, it’s best to have the computer and device (if that’s what is being modified) connected to a UPS^ (Uninterruptible Power Supply — a surge protector with a battery inside). This will keep the electricity constant during the entire modification process. (If the electricity were to fluctuate during a Firmware update, it’s possible that the device will no longer work.) For more information on UPS products, see “FIXING THE MODULES” > “UPS (Uninterruptible Power Supply)”.



### **Test device on another computer**

A quick and easy way to tell if a device is operating properly, is to connect it to another computer, if possible. By doing this, unless the other computer is having problems of its own, you are eliminating any Software or Hardware issues in YOUR computer.

Keep in mind, some devices, such as a scanner, may require specialized Software in order to function. If this is the case with the device you are troubleshooting, be sure to install the necessary Software in the computer you are testing it with.

If the device DOES NOT work in the other computer, there's a strong possibility that the device itself is experiencing a Hardware problem. In this case, contact the device's manufacturer for assistance.

If the device DOES work in the other computer, the cause is probably with the original Mac's Software. Continue with the other troubleshooting tips in the "MODULES AND SOLUTIONS" section of this book.

## 94 Fixing The Modules

### Update Mac OS X

Some problems can be the result of incompatible Software VERSIONS. This can be true with new or updated Applications^ as well as new devices, such as a printer, scanner, camera, etc.

Some problems won't appear until after certain features are used. So don't be surprised that the printer is the reason your Operating System^ needs to be updated — even if the printer is 6-months old and there were no problems until now.

If you suspect the Operating System (OS) should be upgraded, you could either update it now or contact the Application or device manufacturer, to be sure their product will WORK or WORK BETTER with an update to the OS.

To see if an update to your Mac's Operating System is available, pull down the "Apple" menu and choose "Software Update..."

NOTE: If the "Software Update" does indicate an update to Mac OS X is available, it's actually BETTER to simply write down the version number, download it manually from Apple's website and install it yourself.

## Downgrade Mac OS X

**WARNING:** Downgrading the Mac's Operating System^ version may result in Software (such as "Mail" and "Safari") and devices (such as a camera and scanner) to not work properly. Be sure your Software and devices will work with a lower version of the Operating System before proceeding (by contacting the manufacturer of that program or device).

**NOTE:** Every Macintosh came with a specific version of the Operating System (10.2.6, 10.3.2, 10.4.5, etc.). A lower version of the Operating System cannot, and should not, be installed. However, if you've upgraded the Operating System beyond that initial version, then you CAN downgrade Mac OS X until you reach that initial version.

IF your Mac's Operating System was recently upgraded AND there are now problems with the Macintosh, a USB^ device (such as the printer) a certain program, etc, then DOWNGRADING the Operating System version may solve the problem.

Keep in mind, when Apple releases a new version to the Operating System, it IS designed to do its job. Apple cannot possibly verify that every feature of every Software and Hardware product combination will function flawlessly, so you may encounter a quirk which cannot be fixed, or one which may have been introduced, with an UPGRADE to your Mac's Operating System.

So, let's say your Macintosh was using Mac OS X 10.4.8. You upgraded to version 10.4.9 and are now experiencing problems. If you'd rather have the functionality of 10.4.8 and don't care about the BELLS & WHISTLES offered with 10.4.9, then you could DOWNGRADE the Operating System.

Here is the most reliable way to downgrade a Mac's Operating System:

- 1 - Locate the Mac OS X Install disc which was used to initially install OS X. (In our above example, this would be a DVD which contains any version of "Tiger" from 10.4.0 through 10.4.8 — but not 10.4.9.
- 2 - Insert the disc and follow its instructions.

## 96 Fixing The Modules

- 3 - After the Macintosh is started from this disc, you should be in the Installer program. Look for an “Options” or “Customize” button. One of these will offer the opportunity to “Archive and Install”. This is what you want to do. This will use your current Internet, eMail and other settings to configure the Operating System you are about to install.
- 4 - Once the installation is complete and the Macintosh is started normally, visit Apple’s website ([www.apple.com](http://www.apple.com)), click the “Support” link at the top and then visit the “Downloads” page (via the link, which is about halfway down the page). Download the COMBO update version which will take your Macintosh to the level you want to end with. (Let’s say your Install disc places Mac OS X version 10.4.3 onto the Hard Drive but you want to end up with version 10.4.8. You would simply download the 10.4.8 COMBO update and install it.)





### **Wireless Device problem**

If you've gotten this far in my troubleshooting steps, the possibility of the wireless device having a Hardware problem is pretty high. Contact the device manufacturer to compare the cost of repair versus the cost of buying a new device. Of course, if the device is still under warranty, that should probably be your first choice.

## 98 Fixing The Modules

### Check network settings

Sometimes the problem can be caused by changed network settings. The change could have been done by the User (you) or by a piece of Software — whether intentionally or because it's corrupted (mixed up). When troubleshooting never assume anything. Gather only FACTS and be sure to question and verify all the details.

The programs which can help you edit network settings are:

- “System Preferences...” (under the “Apple” menu) > “Network” (for wired and wireless networks),
- “Applications” folder > “Utilities” folder > “AirPort Setup Assistant” (for wireless networks),
- “Applications” folder > “Utilities” folder > “AirPort Admin Utility” (for wireless networks).

If you don't have the networks settings needed, sit in front of your Macintosh when you telephone the tech support department of your Internet Service Provider (ISP) or the manufacturer of the device you are having problems with.

NOTE: Although the settings are entered into a part of the Mac's Operating System^, Apple's tech support department won't be able to help you with this. Instead, you should contact the manufacturer of the networking device:

- Cable Modem,
- DSL Modem,
- Ethernet^ Router,
- Ethernet Switch,
- Ethernet Hub^, etc.

## Repair Permissions

**NOTE:** Although repairing permissions will solve some problems by itself, it's a good idea to run DiskWarrior first. (See "FIXING THE MODULES" > "Run DiskWarrior" for more information.) Since most Macintosh processes, including repairing permissions, must use the disk's "Directory Structure^", running DiskWarrior before a large number of files are accessed will ensure that this part of the Macintosh is reliable.

If you experience the following, the permissions may not be set correctly for one or more files or folders:

- One or more Applications^ won't Launch.
- One or more of YOUR documents won't open.
- Trash won't empty.
- Can't rename one of YOUR files or folders.
- Can't move one of YOUR files or folders to another folder.
- A message appears stating you don't have sufficient privileges or permission to perform a certain task.

Here are the steps to reset permissions:

- 1 - Click once on the "Finder" icon, in the "Dock".
- 2 - Open the "Applications" folder.
- 3 - Open the "Utilities" folder.
- 4 - Launch the program called "Disk Utility".
- 5 - At the top of the left column, click once on the upper-most Hard Drive icon. (If you're using Mac OS X 10.2.8 or lower, click on the lower, indented icon.)
- 6 - Near the bottom-center, you should see a button labeled "Repair Permissions" — click it once.
- 7 - When it's finished, pull down the "Disk Utility" menu and choose "Quit Disk Utility".

**NOTE:** There is also a "Verify Disk Permissions" button. Although you could use this instead of the "Repair Permissions" button, the program may simply inform you that repairs are needed. Then, when

## 100 Fixing The Modules

you click the repair button, it will take just as long as it did to verify things. So clicking the repair button is the fastest option to use. Yes, there are times when you would want to verify permissions **WITHOUT** repairing them. This would be when you suspect the Hard Drive of having serious physical problems. In this case, by choosing to only **VERIFY** permissions, the program will only **LOOK** on the Hard Drive and, unlike “Repairing Permissions”, it will not change anything. This ensures the Hard Drive is not stressed any more than necessary.

(See “MAINTENANCE” > “Repair Permissions” for more information.)

## Trash Caches

Sometimes a Cache^ file can interfere with a process within the Macintosh. Since Cache files provide quick-access to information which may be needed by a program or the Operating System^ on a frequent basis, deleting them won't cause any problems. If that information is needed, after being deleted, it will again be retrieved from its original location and then cached (stored).

NOTE: Some Cache files, such as those within the "Library" and "System" folders, are protected. You will be asked for a password before they can be moved to the Trash. If you're not sure of a file's purpose, leave it alone. It's better to have the Macintosh working with a few quirks than it is to have the Macintosh not work at all.

To delete your Cache files...

- 1 - Click once on the "Finder" icon, in the "Dock^".
- 2 - Navigate to your "Home" folder.
- 3 - Open that "Library" folder.
- 4 - Open the "Caches" folder.
- 5 - Drag one or more of those items to the Trash. (I typically select all of them [you may want to pull down the "Edit" menu to do this] and drag them to the Trash — files and folders.) Don't empty the Trash just yet. If you do, you shouldn't have any problems but we want to be sure the Macintosh isn't going to be confused by having these items removed while it may still be using them.
- 6 - Shut down the Macintosh. This is done so the Macintosh will not use those items the next time it is turned ON. Yes, you can Restart the Mac but shutting it down would be a bit better. Some processes aren't cleared during a Restart. Whereas, shutting down the Macintosh will help it to FORGET a little more.
- 7 - At this point, the Macintosh should not be using any of these files — so you can now Empty the Trash.

(also see "Trash .plist files" > "Files which can be safely thrown out")

# 102 Fixing The Modules

## Trash “.plist” files

A plist<sup>^</sup>, or Property List file (also referred to as a “Preference File”), contains some of the attributes you’ve made for the Operating System<sup>^</sup> or a specific program.

Most programs have one and a corrupted (mixed up) plist file can sometimes cause that program to not open or to behave in a strange way.

If one Application<sup>^</sup> refuses to open, throw out the “.plist” file associated with that program. For example, if “TextEdit” won’t Launch (won’t open) or isn’t working properly, do the following:

- 1 - If TextEdit is currently open, click it’s Dock<sup>^</sup> icon, pull down the “TextEdit” menu and choose “Quit TextEdit”.
- 2 - Click once on the “Finder” icon, in the “Dock”.
- 3 - Navigate to your “Home” folder.
- 4 - Open that “Library” folder.
- 5 - Open the “Preferences” folder.
- 6 - Locate the file called:  
com.apple.TextEdit.plist  
and drag it to the Trash.
- 7 - Empty the Trash.
- 8 - Open TextEdit and see if the problem still exists.

If a program “Unexpectedly Quits” and an alert box appears, stating this fact, it will probably offer you three choices: “Close”, “Report...” and “Reopen”. If you choose “Reopen” and the Application immediately quits again, you will probably see another alert box which states “the application unexpectedly quit after it was reopened”. If THIS alert box offers a “Try Again” button, click it once. At that point, Mac OS X will set aside that program’s preference file(s), create a new one and then open the Application.

Visit this Apple web page for more information:

<http://docs.info.apple.com/article.html?artnum=301084>

If the program now works as it should, when you “Quit” another alert box will appear. This time, it will ask if you want to keep the new settings. If the program now works properly, click the “Yes” button and the old plist file will be renamed by

adding “.saved” to the end of its name. For example, if the problematic program is TextEdit, its new plist name will be:  
`com.apple.TextEdit.plist.saved`

This keeps the old plist file around (in its original location), just in case you need it, but the program will continue to use the newly-created file(s).

**NOTE:** If there is a problem with Apple’s “Mail” program, be cautious. It stores a lot of information within its preference files. Throwing them out may mean you’ll have to set up the “Mail” program entirely from scratch.

### Files which can be safely thrown out

- Home > Library > Preferences: Everything INSIDE this folder can be Trashed. You may want to take Screenshots^ first (of the Dock, a Finder window [to see your Sidebar^ configuration] and all the dialog boxes on the “System Preferences” window) because those settings, as well as some others, will be reset back to factory (default^) settings and you may want to reset them later.

**NOTE:** Removing the file “com.apple.mail.plist” will remove all of your “Mail” program’s eMail accounts. The only account which will not be deleted is the dotMac account (if you subscribe to Apple’s dot-Mac service) which is entered into the “System Preferences...” > “.Mac” > “Account” section. Of course, if the problem lies within the “Mail” program, then you will want to remove this file.

- Home > Library > Caches: Everything INSIDE this folder can be thrown out.
- Home > Library > Icons: Everything INSIDE this folder can be thrown out.
- Home > Library > Logs: Everything INSIDE this folder can be thrown out.

If you don’t want to actually delete any of the above items (plist, Caches, Icons or Logs), you can move them to the Trash and not empty it. However, this can be dangerous because you may forget that you are temporarily storing those items in there and “Empty Trash”.

## 104 Fixing The Modules

Simply moving those items to another folder, maybe a new folder on the Desktop^, may not break the link between those items and the Operating System or another program which uses them. The Macintosh will probably keep track of these items — even if the Mac is Restarted.

**NOTE:** The reason we need to BREAK THE LINK is to force the Operating System and / or a specific program to stop using one of those potentially-corrupted files and to create a new, un-corrupted one.

Another way to BREAK THE LINK with those items is to place them in an archived (compressed) file. Here's how to do it:

- 1 - Create a new folder on the Desktop. (In case you have to return one or more of those items to its original folder, you may want to give this folder a name which will describe what it's going to store, such as "old cache files", etc.)
- 2 - Drag any of the above items to this folder.
- 3 - Once Step 2 is complete, move the Pointer^ over the icon of that folder, hold down the Control key (on the keyboard) and then hold down the mouse button. This will cause a Contextual Menu to appear. Choose "Create Archive of" and then release the mouse button and the Control key. Instantly, a new file will appear on the Desktop. It will have the name of the folder, as well as the letters ".zip" at the end of that name. This is a Zip (compressed) file — an exact duplicate of everything which is stored inside that folder.
- 4 - Now you can move the folder you created to the Trash. (Do not drag the Zip file to the Trash. Its contents will not be used because those items are in a compressed (unusable) form and the link to those files has been broken.)
- 5 - Pull down the "Finder" menu and choose "Empty Trash..."
- 6 - Pull down the "Apple" menu and choose "Shut Down...". A Shut Down is more thorough than a Restart. By doing this, we will know the Macintosh has cleared its RAM (memory) and any other pieces of temporary storage.
- 7 - After at least 15-seconds, go ahead and turn ON the Macintosh.

At this point, you should be done. Once the Mac is Restarted, you'll have to reset some of your previous preferences, if you want them the way they were. The main task though is to make sure everything functions and if there was a problem, see if it's still there.



If you want to put things back the way you had them, before Step 1 above...

- 1 - Double-click on the Zip file you created. This will place a new folder on the Desktop with a similar name.
- 2 - Open that folder.
- 3 - Drag the contents back to their original location. In other words, if one of the new folders contains “Preference” files, open your Hard Drive, click on the “House” icon located in the “Sidebar” (your “Home” folder), then open the “Library” folder, then open the “Preferences” folder. Now, drag the items from that new Desktop folder to the “Preferences” window. (Do not drag the “Folder” from the Desktop to the “Preferences” window.)
- 4 - A message may appear stating “An item with the same name already exists in this location. Do you want to replace the older item?” Your button options will be “Stop” or “Replace”. Click “Replace” if you want the item(s) you’re dragging to be used INSTEAD of the item(s) which are already inside that window.

NOTE: Although this is a convenient way to restore your settings, the file you are asking the Macintosh to use may be corrupted (mixed up). If this turns out to be the case, simply repeat the steps above, under “Another way to break the link”.

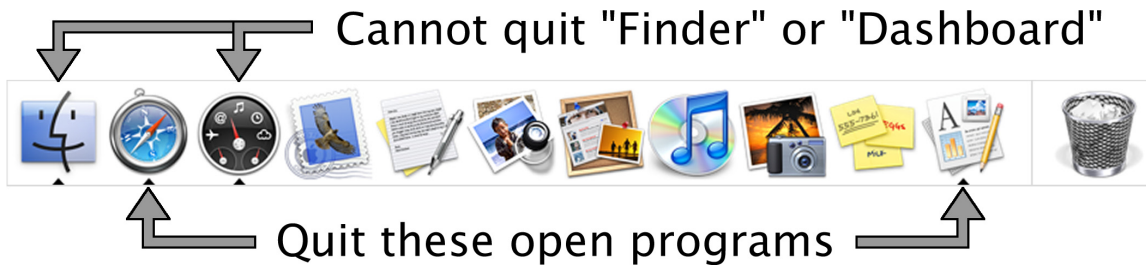
## Force-empty the Trash

Sometimes one or more items in the Trash will not allow the Trash to be emptied.

**WARNING:** Before getting caught up in solving a Trash-related problem, be sure to open the Trash and make sure you really want to delete (permanently remove) ALL the items it contains. Some files are not supposed to be deleted because they are a part of the Operating System^ or an Application^. NEVER place an item into the Trash which you did not create or download from the Internet, email, CD, DVD, Flash Drive, etc. It's better to have more files than you think you need than to throw out that ONE file which causes your Mac to not start up.

Here are a few suggestions in solving this problem...

- **File in use:** Sometimes the Trash will not empty (or a CD, DVD or Flash Drive will not eject) because the “file is in use”.



- Δ Make sure the file is not currently open by going to each open Application and quitting any open documents. You can quickly do this by looking in the Dock<sup>^</sup> and looking for a black triangle (CREATE DIAGRAM) which is next to one of those icons. Except for the “Finder” and “Dashboard” (you cannot “Quit” these), move the Pointer<sup>^</sup> over the icon, hold down the mouse button and in the menu which appears, choose “Quit”. (This will close any open documents in that program and remove the program from RAM<sup>^</sup>.)
- Δ Sometimes there are no programs open but the Mac still thinks a certain file is “in use”. Try this...

- 1 - Pull down the “Apple” menu and choose “Restart...”.
  - 2 - If this Macintosh will not restart, locate the Power Button (the button which normally turns this Macintosh ON) and hold it in for about 10-seconds. This should FORCE SHUT DOWN this Macintosh.
  - 3 - If that doesn’t work, you may have to turn OFF the surge protector this Mac is plugged into. If it’s not connected to a surge protector (you really should get a “UPS^”) then pull the Mac’s electrical cord out of the electrical outlet. (For more information on “UPS”, see “FIXING THE MODULES” > “UPS (Uninterruptible Power Supply)”.)
- Force-empty the Trash: This technique will empty the Trash most of the time...
    - 1 - Place the Pointer over the Trash icon, in the Dock.
    - 2 - Hold down the mouse button and in the menu that appears, choose “Empty Trash”. There will be no “warning” message — the Trash will empty itself at that point.
  - File is locked: Sometimes a file cannot be deleted because it is locked. When this happens:
    - 1 - Click once on the Trash icon, in the Dock.
    - 2 - Stay within this window and click once on an icon.
    - 3 - Pull down the “File” menu and choose “Get Info”.
    - 4 - Near the top-half of this dialog box, you should see the word “Locked” with a small square to its left. If there is a checkmark in this square, click it once to remove it. If there is no checkmark in that square, close this dialog box and go back to Step 2 above.
    - 5 - Close this window and try to empty the Trash. (It’s under the “Finder” menu at the top-left corner of the Screen^.)

# 108 Fixing The Modules

## Add more RAM/Memory

Although adding more RAM (memory) will make a computer take longer to start up, because it has more RAM to test, computers typically benefit from all the RAM they can get. A basic rule of thumb is... “You can never have too much RAM.”

Unless you purchase a Macintosh which cannot be opened by the User (you), more RAM can always be added later.

Adding more RAM will:

- Make the Operating System^ more efficient,
- Allow you to open more programs at the same time,
- Allow you to work on larger documents (with more pages),
- Allow you to work with larger photos and photos with higher resolution,
- Allow you to Copy and Paste more information between programs and other documents, etc.

Although most RAM comes with a LIFETIME WARRANTY, “generic” RAM will TYPICALLY “go bad” more often than “name-brand” RAM.

Basically, you’ll know if the RAM you are about to purchase is generic when you ask for the manufacturer’s name. If you are told “I don’t know” or “I can’t give out that information”, then it’s probably “generic” RAM. Some “name-brand” RAM companies are:

- Buffalo/TechWorks
- Crucial
- Edge
- Kingston
- PNY
- SimpleTech
- Viking

## Reinstall “Combo” update

Sometimes one or more items in Mac OS X can become corrupted (mixed up) or could have been moved or Trashed by someone using that Macintosh.

If you suspect the Operating System<sup>^</sup> to be the cause of your Mac’s problem, reinstalling the “Combo Update” may resolve the situation.

**NOTE:** This procedure will only fix the problem IF the corrupted or missing item is in the “Combo Update”. There is no way to determine this but since installing the “Combo Update” will simply replace LIKE-FOR-LIKE (the same item will replace an older copy of the same item), it’s worth a try. If the corrupted or missing item is not in the “Combo Update”, you will see no change in the problem.

Here are the steps for installing a “Combo Update”:

- 1 - Pull down the “Apple” menu and choose “About This Mac”.
- 2 - Notice the version number. Also notice the “Processor”. The key information here is “PowerPC” (also known as “PPC”) or “Intel”.
- 3 - Close this window.
- 4 - Visit Apple’s website.
- 5 - Click once on the “Support” Tab, located at the top-right of that page.
- 6 - Click once on the “Downloads” link, located about half-way down that page.
- 7 - Search for the version number you found in Step 2.
- 8 - When you find the “Combo Update” with that version number, download it.

**NOTE:** Apple creates the same Mac OS X version as a “Client”, “Server”, “Delta” and “Combo”. You are looking for the “Client Combo Update” — although it may not have the word “Client” in its name. Just be sure its name doesn’t contain the word “Server” (Unless, of course, you are restoring the Software in a Server.) Also... Apple may not include “PowerPC”, “PPC” or even “Intel” in the name of future updates. Instead, you may find them labeled as “Universal”. These will work on both types of Macintosh.

## 110 Fixing The Modules

- 9 - After the download is complete, double-click the icon of the “Combo Update”. This will decompress it and make it ready for you to use.



- 10 - A window should now appear with a “Package” icon inside. Double-click this icon.
- 11 - Follow the steps and the “Combo Update” will be installed.

## Archive and Install Mac OS X

This method will place the current Operating System<sup>^</sup> in a folder called “Previous System folder”. It will then install the Operating System from the disc and place all the pieces where they need to go. Once that is done, as long as “Preserve Users and Network Settings” is selected, it will copy various settings from the “Previous System folder” and use those to configure the new version. In this way, the Internet settings, eMail preferences, Dock<sup>^</sup>, Desktop<sup>^</sup>, Documents and everything else in the “Home” folder will all be set just the way they were before this installation.

This method will not transfer third-party (non-Apple) items. It’s best to install these from their original sources (disc, download, etc.).

NOTE: Although you can drag any missing preferences and other pieces from the “Previous System folder” to their corresponding location in the new Operating System folders, you may also be bringing back a problem — such as a corrupted (mixed up) file. Install missing items, especially when trying to solve a problem, from unpolluted (original) sources.

Here are the steps for performing an “Archive and Install”:

- 1 - Locate the Mac OS X Install disc which was used to initially add OS X to this Macintosh.
- 2 - Insert the disc and follow its instructions.
- 3 - After the Macintosh is started from this disc, you should be in the Installer program. Look for an “Options” button. Select “Archive and Install”. Be sure “Preserve Users and Network Settings” is also selected.

NOTE: At this point, the Macintosh has been started from a CD or DVD. This means the software on this disc is in complete control and none of the Operating System components which your Macintosh had been using (the ones on the Hard Drive) are being used. If the problem you were experiencing is now gone, you can PROBABLY suspect that it’s being caused by a “Software” problem. If this is the case, then continue with these Steps and the problem SHOULD be fixed. On the other hand, if the problem is still there, there’s a

## 112 Fixing The Modules

GOOD chance that it's being caused by a "Hardware" problem and continuing with these Steps will probably not make any difference.

- 4 - Once the installation is complete and the Macintosh is started normally, the "Software Update" will probably be displayed. It will show some of the updates which this Macintosh now could use. Since it's more complete to skip some of these and install a "Combo" update, go ahead and "Quit" this program.
- 5 - Pull down the "Apple" menu and choose "About This Mac". Notice that this Macintosh MAY be using an older version of the Operating System than it previously had. If you want to upgrade the Operating System to a newer version, see "FIXING THE MODULES" > "Reinstall Combo update" for details on how to do this.
- 6 - If you DID install a "Combo" update in Step 5, continue with these Steps... Pull down the "Apple" menu and choose "Software Update..."
- 7 - If it returns a list of one or more items which should now be installed, you could have this program download and install them for you (an OK method) or make a note of what is required, visit Apple's "Downloads" page again and then download and install them yourself (the more reliable method).
- 8 - After installing the items found in the "Software Update..." list, go back to "Software Update..." and see if there are any more items your Macintosh should have. (It's a smart update system — sometimes it won't show you a certain update until another is installed.) Repeat Step 8 until there are no more updates to add.



## Reinstall device Software

Some peripherals (external devices) require their own Software, in order to function or to offer more functions than they could otherwise achieve. Some devices, such as most printers and cameras, use the Software Apple includes with the Operating System^.

Sometimes the Software which a peripheral relies on becomes corrupted for different reasons. When this is suspected, simply reinstall that device's Software.

NOTE: Before doing this, it would be a good idea to visit the device manufacturer's website and see if a newer version, or a version which is more-closely matched to your Mac's Operating System version, is available.

If the manufacturer does not offer Software for that device on their website, and the Software is included with the Mac's Operating System, you'll have to reinstall the Operating System. (See "FIXING THE MODULES" > "Reinstall "Combo" update" and "FIXING THE MODULES" > "Archive and Install Mac OS X" for information on how to do this.)

## 114 Fixing The Modules

### Check “Applications” folder for program

Mac OS X is picky when it comes to the location of Applications^ (programs) — especially Apple’s own programs, such as iTunes, iPhoto, etc. These programs won’t be upgraded, or upgraded properly, if they are not inside the “Applications” folder.

**NOTE:** Placing some programs, such as the ones above, in a folder WITHIN the “Applications” folder, is also not a good idea.

Some programs will not function properly if they are not stored in the “Applications” folder.


So, one quick look inside the “Applications” folder should tell you whether the program in question is there. If you find it somewhere else, drag (move) it to this folder.

**NOTE:** Some programs are self-contained. Others may have support pieces which must be kept in the same folder as the main program. In this later case, if you cannot locate the program’s original folder:

- 1 - Click once on the “Finder” icon, located in the Dock.
- 2 - Open the “Applications” folder.
- 3 - Pull down the “File” menu and choose “New Folder”.
- 4 - It’s ready for you to enter a name, so go ahead and type a name for this folder. (Then press the “Return” key on the keyboard.)
- 5 - Drag the program and any of its support pieces to this folder icon. (The folder itself does not have to be open to do this.)

If you find more than one copy of the main program’s icon:

- 1 - Click its icon once to select (highlight) it.
- 2 - Pull down the “File” menu and choose “Get Info”.
- 3 - Near the upper-half of this tall, narrow dialog box, you should see “Version:”  
If you don’t see a version number, check the “Modified:” date. This should be the last time the manufacturer updated this program.
- 4 - Repeat the above 3 Steps for each copy of the program you find. (If you keep each “Get Info” window open, you’ll be able to compare their versions and dates side-by-side.

- 
- 5 - You will probably want to keep the program with the most recent date or highest version number.

NOTE: If you're not sure which one to delete, be sure to back them all up to a CD, DVD, Flash Drive, external Hard Drive, etc., before Trashing any of them.

# 116 Fixing The Modules

## Upgrade device Software

Sometimes, reinstalling the same version of a device's Software, won't solve the problem between the Macintosh and the peripheral. Although this method will replace the device's Software with a clean, uncorrupted (not mixed up) copy, this may not be the problem. Instead, the problem could be with COMPATIBILITY between the Macintosh and the device. To clear up this issue, try upgrading the device's Software.

Visit the device manufacturer's website and see if they offer a newer version of Software for that peripheral.

**NOTE:** Some Software download areas don't list the version number. For those cases, try to locate a date (or just a YEAR) which may be on the CD or DVD which came with the device. Otherwise, contact the manufacturer, in order to be sure you are about to download and install the correct Software. (Simply sifting through the contents of your Mac's Hard Drive, in order to locate any of the required files, and then checking the date or version number, is not always a reliable way of deciding which version your Mac is really using.)

## Reinstall Application

Sometimes a program (Application^) can become corrupted (mixed up). When this happens, the program can exhibit various problems, such as:

- It won't Launch (open),
- It will quit without warning,
- Some or all of its features cannot be used, etc.

When a program doesn't perform as it should, replace it with a fresh copy. This is accomplished by reinstalling the program from its original CD or DVD — if this is how the program was installed in your Macintosh. Otherwise, you may need to download it again from that company's website.

NOTE: Although most programs can simply be installed without doing anything extra, some programs must be un-installed before a proper re-installation can be made. Check with that company if you're not sure.

The steps for reinstalling a program should be available on the original CD or DVD or on that company's website.

# 118 Fixing The Modules

## Update Application

Sometimes a program (Application^) doesn't UNDERSTAND, or work-properly, with the other technologies in the Macintosh. This can happen when the Mac's Operating System^ is updated or, in the case of viewing web pages, this can happen when a website has updated their underlying technology.

For a specific program, such as the web-page-design program "Freeway" ([www.softpress.com](http://www.softpress.com)) to keep up with a newer Mac OS X technology, such as Java, the program ("Freeway" in this case) must also be updated. Contact the manufacturer of that program, in order to learn whether they are offering an update and how much it will cost.

NOTE: Be sure the update is compatible with the other technologies in your Macintosh. Visit that company's website and view the "System Requirements" for the update.

## Switch to Broadband

“Dial-Up” Internet access uses standard telephone lines and is very slow compared to today’s Broadband (HIGH-SPEED) technologies. Because of this, and the fact that more and more computers are accessing the Internet via this newer method, the Dial-Up experience is going to get worse.

Computers with faster access are communicating with various web Servers (Internet computers) much faster than those with a Dial-Up connection. This means the Dial-Up user sees partially-displayed web pages, missing images or no page at all.

If your Macintosh is using a Dial-Up Internet connection, and you’d like to access the Internet using a Broadband technology, contact:

- Your local Cable TV Provider (for Cable Modem technology),
- Your local telephone company (for DSL technology — my personal choice), or
- A satellite Internet Provider, such as [www.directv.com](http://www.directv.com) or [www.hughesnet.com](http://www.hughesnet.com).

# 120 Fixing The Modules

## Reset Modem, Router and Mac

Electrical fluctuations to the Modem, Router and/or the Macintosh, or an Internet problem (behind the scenes), can cause a break (disconnection) in Internet service. When electricity stops flowing into a device, even for a split-second, that device can become confused. Although its lights may be ON and it SEEMS as though everything is working, under the hood the device may be just sitting there doing nothing. If you suspect this is the problem, you may want to contact your ISP (Internet Service Provider) or the manufacturer of the Ethernet^ Router (or Ethernet “Switch” or Ethernet “Hub^”, depending on which you have).

If you want to reset things yourself, here are some general steps which should bring back most high-speed (broadband) Internet connections:

- 1 - Shut down the Macintosh.
- 2 - Disconnect the Modem’s electrical cord from the back of the Modem. (Yes, you can disconnect its electrical corder from the surge protector or wall outlet, but, in some cases, it’s more effective to remove the cord from the back of the Modem.)
- 3 - Disconnect the electrical cord from the back of the Router (or “Switch” or “Hub”).
- 4 - Wait at least 2-minutes.
- 5 - Reconnect the Router’s electrical cord.
- 6 - Wait at least 30-seconds, to give the Router enough time to reach its READY state.
- 7 - Reconnect the Modem’s electrical cord,
- 8 - Wait at least 30-seconds, to give the Modem enough time to reach its READY state Then,
- 9 - Turn ON the Macintosh.

NOTE: When checking to see if the Macintosh has an Internet connection, use a web Browser^ (not an eMail program) and check a few web pages — especially pages this Macintosh hasn’t visited. (This will give you a better idea if the Macintosh is accessing the Internet. If you visit a web page which has been previously visited, you risk the Macintosh simply bringing up the Cache files from its Hard Drive and you will THINK the Mac is now connected to the web.)



If the above steps don't solve the problem, there are one or two things you can still do. However, if you're a beginner, I would suggest you contact the tech support department of your ISP for the details. If you're an expert, try these two things:

- The Router
  - 1 - Open a Browser and enter the Router's IP address. (It will look something like this: 192.168.0.1)
  - 2 - If a dialog box appears, asking for a Name and Password, go ahead and enter this information. (This information would have been in the documentation which came with that device.) Once you're past this box, you will be communicating directly with the Router.
  - 3 - If you're using a DSL Modem and have problems with eMail or accessing certain secure websites, you may want to change the WAN's "MTU" number (Maximum Transmission Unit) from 1492 to something lower, such as 1472, 1452, etc. (Be sure to verify this with your ISP. Entering a wrong number won't harm anything but your Internet experience may be problematic.)
- The Modem
  - 1 - Connect the Macintosh directly to the Modem.
  - 2 - Open a Browser and enter the Modem's IP address. (It will look something like this: 192.168.1.254) (This information may have been included with the Modem's documentation or on its CD, if it came with one.) If a dialog box appears, showing the name of the ISP or Modem brand, you are successfully communicating directly with the Modem. This means the Modem is working but may not be communicating with the Internet.
  - 3 - Since you are using a Router (or "Switch" or "Hub") with a broadband Modem, the Modem must be set to "Bridged" or "Bridged Ethernet" mode in order for these two devices to work properly. If the Modem is not currently set to this technology, these options can probably be found near "PPPoE" — so look for that setting.
  - 4 - Some Modems are factory set to communicate with the Internet "On Demand". This can cause a hesitation any time the Modem times-out the connection. Look for this setting and change it to "Always On".
  - 5 - See if there are any options for running a diagnostic test on the Modem. This may give you some clues as to what is happening.

# 122 Fixing The Modules

## Check the data cable

Every external device which is connected to the Macintosh communicates (sends and receives information) via a cable (unless, of course, it's using wireless technology). Sometimes, the cable can become faulty for different reasons:

- Cable deteriorated from being in direct sunlight for several years.
- Small wires within the cable (which cannot be seen) have become broken due to a cat, dog or other animal chewing on the cable.
- Small wires within the cable have become broken because, at some point in time, someone used a screwdriver, putty knife or other object to stuff the cable along the edge of the floor, under the carpet.
- Small wires within the cable have become broken because, at some point in time, a chair, filing cabinet, bookcase, computer, Monitor^ or other heavy object was sitting on the cable.

A quick way to test a data (USB^, FireWire^, Ethernet^, etc.) cable is to disconnect it from the problematic device and connect it to a device which also uses that type of cable. For example, if you are experiencing problems with the printer, disconnect its USB cable and connect it to a USB scanner or external USB Hard Drive— if you have one.

If the problem involves a USB or FireWire cable, another thing you could try is to connect that cable to a different USB or FireWire port on the Macintosh. (The Apple keyboard also offers an extra USB port.)

**NOTE:** If the problem is with a USB device AND that device is not connected directly to an electrical source (surge protector or wall outlet), then it will not work properly if it's connected to the USB port on the keyboard. USB and FireWire devices can be "Powered" and "Unpowered". The keyboard does not supply enough electricity through its USB ports to power an Unpowered USB device. In this case, the device's USB cable must be connected to the USB port located on the Macintosh itself.

The same is true, if you're using a USB or FireWire "Hub". If an Unpowered USB or FireWire device is connect to a Hub, the Hub

must have its electrical cable connected to an electrical source. This is the only way enough electricity can be supplied to the Unpowered devices connected to this Hub.

If you do have to purchase a new cable don't simply buy the longest cable offered. Since data is sent and received over the cable, the longer the cable the more potential it will have for problems:

- The data signal degrades, which causes the devices to continually re-send the information. (This is when you experience a “slow printer”, “slow Internet access”, “slow transfer of files between computers”, etc.
- The longer the cable the more interference it MAY receive — during thunderstorms, from fluorescent lighting, microwave oven use, electric motors, etc.

When purchasing cables, I generally make sure they're a good-quality — one-piece molded and a fair amount of shielding. When I have to buy a long cable... The longer the cable, the better the shielding.

Here are some recommended cable lengths:

- Ethernet (10/100/1000 BASE-T) - The maximum length of an Ethernet cable should be no longer than 328-feet (100m). For more information on Ethernet, visit: <http://grouper.ieee.org/groups/802/3>, and also: [http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito\\_doc/ethernet.htm](http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ethernet.htm)
- FireWire (also known as “IEEE 1394”)- Try not to buy a cable longer than 15-feet (4.5m). Popular lengths are 2-feet (0.7m) and 6.5-feet (2m). For more information on FireWire technology, visit: <http://developer.apple.com/hardwardrivers/firewire/index.html>
- USB - Try not to buy a USB cable over 10-feet (3m). A 6-foot (1.8m) cable is the most popular length. For more information on USB technology, visit: [www.usb.org/about/faq](http://www.usb.org/about/faq)

When shopping for cables, be sure to bring the old cable with you. In that way, the salesperson can see the cable you want to replace.

# 124 Fixing The Modules

## Rebuild Mailbox

If one or more eMail messages are garbled or if searching within Apple's "Mail" program doesn't produce the messages you're looking for, you may need to rebuild the Mailbox.

**WARNING:** It's always a good idea to backup your eMail messages before performing any major changes to the "Mail" program — such as the one outlined below. (See "MAINTENANCE" > "Saving Your eMail Messages" for information on how to do this.)

To update the list of eMail messages in an eMail account:

- 1 - Using the Drawer or Sidebar^ (the vertical column which contains the "Inbox"), click once on the Mailbox you want to rebuild.

**NOTE:** Although you can rebuild any Mailbox, you cannot simply click on (highlight) the "Inbox", "Drafts", "Sent" or "Trash" Mailboxes, if the "Mail" program is keeping track of more than one account. Instead, click once on the "Disclosure Triangle^", which is located to the left of each title which has more than one account associated with it. When that triangle is pointing downward, it will DISCLOSE (show) the contents of that item, indented beneath it. At that point, you can click on one of those indented Mailboxes.

- 2 - Pull down the "Mailbox" menu and choose "Rebuild".

If you're still experiencing problems with eMail, here are a few other ideas to try...

- Make sure the Hard Drive isn't full. Apple's "Mail Help" states that you should have a MINIMUM of 100MB or free Hard Drive space at all times — 450MB is recommended.
- Reindex your Mailboxes:
  - 1 - Quit the "Mail" program.
  - 2 - Click once on the "Finder" icon in the "Dock".
  - 3 - In the window that appears, click the "Home" icon (it looks like a small house and sits in the "Sidebar^").

- 4 - Open the “Library” folder.
- 5 - Open the “Mail” folder.
- 6 - Locate the file called “Envelope Index” and drag it to the Desktop^.
- 7 - Locate folders whose name begins with “Mac-”, “Exchange-” and “IMAP-” and drag them to the Desktop.
- 8 - Open the “Mail” program.



- 9 - You'll then be presented with the “Mail Message Import” window. Click the “Continue” button and “Mail” will automatically reconfigure the missing information.
- 10 - When it's finished, another window will appear. Click the “Done” button.



- 11 - If you see the “Offline” symbol, next to one or more Mailboxes, pull down the “Mailbox” menu and choose “Go Online”. This will re-establish the connection between the “Mail” program and the Mail Server (the computer on the Internet which stores your eMail).

## 126 Fixing The Modules

12 - Explore your Mailboxes, open a message, send yourself a message and make sure everything in the “Mail” program is working properly. If it is, you can move the Desktop items (from Steps 6 and 7) to the Trash.

- If you’re using a “POP” account, you can force the “Mail” program to reindex your messages by following these steps:
  - 1 - Pull down the “File” menu and choose “Import Mailboxes...”.
  - 2 - Click once on the line that reads “Mail for Mac OS X”.
  - 3 - Using the “Import” window that appears, click once on the “Home” icon, located in the “Sidebar”.
  - 4 - Using the column located to the right of the “Sidebar”, click once on “Library”.
  - 5 - In the column to the right of this one, click once on the folder which begins with the name “POP-”.

NOTE: If you don’t see this folder, you’re either in the wrong section, the “Mail” program is not set up properly or none of your accounts use “POP” mail technology.

- 6 - Click the “Choose” button.
- 7 - If you are still experiencing problems with the “Mail” program, pull down the “File” menu and choose “Import Mailboxes...”.
- 8 - Click once on the line that reads “Other”.
- 9 - Just as we did previously, navigate to “Home”.
- 10 - Now click on the “Library” folder.
- 11 - Click once on the “POP-” folder.
- 12 - This time, we’re going to go one level deeper... Click once on “Inbox.mbox”.
- 13 - Click the “Choose” button.

## Reduce the number of messages

Check with your eMail service company, in order to learn the limits of your account. Sometimes, there will be a NUMBER limit and/or there may be a Mailbox SIZE limit. Your eMail account may not receive any more messages if it exceeds either of these limits. Your eMail service may then send you a message saying your Mailbox is over one, or both, of these limits. Until you erase some of those messages, your eMail service will not allow any more messages to be delivered to that account.

NOTE: Even though you may have used your eMail program to delete various messages, they may still be in your eMail program's Trash. If they are, they may still count toward your total NUMBER and SIZE limit.

To delete some of your eMail messages, using Apple's "Mail" program, follow these steps:

- 1 - First, be absolutely sure you have backed up all your important eMail messages as well as any attachments (if you want them). Do this by following the steps in "MAINTENANCE" > "Saving Your eMail Messages".
- 2 - At this point, you should have peace of mind, knowing that your messages are safely stored. Now you can go back into the "Mail" program and delete any messages which you don't immediately need access to. You can do this by clicking once on the message you want to delete, then click on the "Delete" button, located in the "Toolbar" (or by pulling down the "Edit" menu and choosing "Delete").
- 3 - Also be sure to check the "Mail" program's automatic settings for deleting your messages. Do this by pulling down the "Mail" menu and choosing "Preferences...".
- 4 - Click once on the "Accounts" icon, located in the "Toolbar" across the top of the dialog box that appears.
- 5 - Click once on the eMail account you want to modify. (It's located in the column running down the left side of that dialog box.)
- 6 - Now, just under the "Toolbar", click once on the "Mailbox Behaviors" button.
- 7 - Set these features any way you like but pay particular attention to the "Trash" section. If you set its "Permanently erase deleted messages when:" menu to

## 128 Fixing The Modules

“Never”, you must be sure to manually delete any old or non-important messages on a regular basis. Otherwise, this eMail account will one day exceed its limits.

8 - Close this dialog box when you’re finished.

NOTE: Your eMail service may also have an ATTACHMENT-SIZE limit. This is different from the other two limits mentioned above. An ATTACHMENT-SIZE limit means you cannot SEND or RECEIVE a message which has an attachment that’s larger than a certain size. For example, if you attach a file (photo, movie, PDF, etc.) to a message, that message might not be delivered if the attached file exceeds the limit set by your eMail service.



## Change “Outgoing Server Port” to 587

Although you may have been SENDING and RECEIVING eMail on a regular basis for quite some time, it’s possible that one day, you can no longer SEND any messages. This can be due to several factors. However, one in particular, may be worth looking at — especially if you are not using your ISP’s (Internet Service Provider’s) eMail service.

Let’s say your ISP is AT&T but you’re eMail account is with Yahoo, Google, Apple’s dotMac service or some other. In this situation, some ISPs, such as AT&T, have changed the “Outgoing Server Port” (for non-AT&T eMail accounts) from the typical “25” to “587”. If this scenario, applies to you, here’s how to change your account settings:

- 1 - Open Apple’s “Mail” program.
- 2 - Pull down the “Mail” menu and choose “Preferences...”.
- 3 - Click once on the “Accounts” icon in the “Toolbar” (across the top of that dialog box).
- 4 - Using the vertical column, down the left side, click once on the account name you want to modify.
- 5 - Click once on the “Account Information” button, located just under the “Toolbar” icons.
- 6 - Click once on the “Server Settings...” button, located near the bottom-right.
- 7 - If the “Server Port” is not set to “587”, change it to “587”. (Leave the other settings alone.)
- 8 - Click the “OK” button and then close this dialog box.
- 9 - See if you can send yourself a message. If you cannot, “Quit” the “Mail” program. Reopen it and try sending another message to yourself.
- 10 - If you still cannot send any messages, contact your ISP and ask them how the “Outgoing Mail Server” settings should be configured.

## 130 Fixing The Modules

### Trash “Envelope Index” (if IMAP)

The “Envelope Index” (which is stored on the Hard Drive) contains the messages which are currently stored in your Macintosh by the “Mail” program. Before deleting this file, it would be wise if you backed this file up to an outside source — such as a CD, DVD, Flash Drive or external Hard Drive. If your eMail service uses the older “POP” mail technology, you may NOT want to throw this file out. Once you read a message, POP technology usually deletes it from the “Mail Server” (This is the computer your Internet Service Provider uses, in order to store your eMail until you read it. The “Mail Server” also delivers any messages you Send.) By throwing out the “Envelope Index” file, you may not see any previously-read messages.

NOTE: If you don’t know whether your eMail account is using “POP” or “IMAP” technology, contact your ISP and be sure before proceeding.

Here are the steps to delete the “Envelope Index” from Apple’s “Mail” program:

- 1 - Click once on the “Finder” icon, in the “Dock”.
- 2 - In the window that appears, click on the “Home” icon.
- 3 - Open the “Library” folder.
- 4 - Open the “Mail” folder.
- 5 - Drag the “Envelope Index” file to the Trash. (If you haven’t backed up this file, do so before moving it to the Trash.)
- 6 - Empty the Trash.

## **Check ISP for troubleshooting**

Before you contact your Internet Service Provider (ISP), be sure to backup any and all of your important eMail messages. (see “MAINTENANCE” > “Saving Your eMail Messages”)

If you cannot SEND eMail, make sure you have entered the correct recipient address (in the “To:”, “CC:” or “BCC:” field), even spelling errors can cause problems.

Another possible reason for not being able to Send and/or Receive eMail lies with your ISP. Sometimes, your Internet Service Provider and/or the company which handles your eMail (if you’re using a separate company for this, such as Apple, Yahoo, Google, etc.), may close down SOME or ALL of their services, in order to do some maintenance or to upgrade their Hardware and/or Software. Contact that company and ask if this is why you are experiencing slower than normal or non-existent service.

## 132 Fixing The Modules

### Trash Browser “.plist” file & “icons”

If your Internet experience is slow or problematic, one thing you could do is to delete the Browser’s “.plist” file. This file holds different preference settings which you may have modified at one time or another. Deleting this file will set all of those settings back to their factory default settings.

Here’s how to locate and remove Safari’s “.plist” file:

- 1 - If the “Safari” icon is in the “Dock”, click it once. Then, pull down the “Safari” menu and choose “Quit Safari”.
- 2 - Click once on the “Finder” icon, located in the “Dock”.
- 3 - In the window that appears, click once on the “Home” icon.
- 4 - Open the “Library” folder.
- 5 - Open the “Preferences” folder.
- 6 - Locate the file called “com.apple.Safari.plist” and drag it to the “Trash”.
- 7 - Launch (open) “Safari”, visit a few web pages and see if it’s any faster and less problematic.

Another area which should be considered, when speeding up Safari (especially OPENING Safari) is its “Icons”. I have seen a Macintosh where it took 67-bounces of the Safari icon in the Dock before the program would open. Then, after removing Safari’s icon files, it launched in its normal one to two bounces.

Here are the steps to remove Safari’s icons:

- 1 - “Quit” Safari, if it’s currently open. (Don’t just close its windows. Pull down the “Safari” menu and choose “Quit Safari”.)
- 2 - Click once on the “Finder” icon, in the Dock.
- 3 - Open your “Home” folder.
- 4 - Open the “Library” folder.
- 5 - Open the “Safari” folder.
- 6 - Open the “Icons” folder.
- 7 - Pull down the “Edit” menu and choose “Select All”.
- 8 - Place the Pointer over one of these folder icons, hold down the mouse button and then drag the Pointer to the Trash icon in the Dock.
- 9 - Pull down the “Finder” menu and choose “Empty Trash...”.
- 10 - Open Safari and see if it’s any faster.

## Empty Browser Cache files

Browsers<sup>^</sup> use one or more “Cache<sup>^</sup>” files to store graphics which may be needed again. Once these pieces are stored on your Hard Drive, whenever you visit that web page, IF the page has not changed, the Browser will display the images from the Cache files, instead of going out into the Internet to request them from that website’s “Server” (computer). The thinking here is that the images would be displayed much faster this way. However, this technology was created during the “Dial-Up” era when most of the world was accessing the Internet through standard telephone lines. During those times, every split-second which could be shaved off the displaying of a web page, meant people wouldn’t have to wait so long to begin reading its content. These days, however, with most computers using “Broadband” (HIGH-SPEED) to access the Internet, some of this technology, such as Caching pages, is not as useful as it once was.

In any case, the information stored within Cache files can be corrupted (mixed up) or otherwise cause a web page to not load (display) correctly. If you are experiencing strange website behavior, or if web pages don’t display at all, etc., see if emptying the Cache will help.

NOTE: Apple’s “Safari” program has a “Reset Safari...” feature, which erases the History (web pages you’ve visited), removes the Cookies<sup>^</sup> and is supposed to empty the Cache. However, I’ve found that this doesn’t or doesn’t completely remove all the Cache information which Safari has stored. This is why I’ve listed “Emptying Browser Cache files” as a troubleshooting tip.

Here are the steps for clearing Safari’s Cache:

- 1 - While in Safari, pull down the “Safari” menu and choose “Empty Cache...”.
- 2 - An alert box will appear asking if you really want to do this. Click the “Empty” button.

Of course, the Cache file itself may be corrupted (mixed up) and asking Safari to empty it may not solve this problem. If you suspect Safari’s Cache file as being corrupted or simply want to be sure the Cache file is completely empty, follow these steps:

## 134 Fixing The Modules



- 1 - Quit Safari, if it's open. (Don't just close its window.)
- 2 - Click once on the "Finder" icon, in the "Dock^".
- 3 - Click once on your "Home" icon.
- 4 - Open the "Library" folder.
- 5 - Open the "Caches" folder.
- 6 - Open the "Safari" folder.
- 7 - If you find any items inside this window, drag them to the Trash.
- 8 - Empty the Trash. (Pull down the "Finder" menu and choose "Empty Trash...".)

## Delete Browser Cookies

If one or more Cookies<sup>^</sup> is corrupted (mixed up), you may experience problems while visiting web pages or the Browser<sup>^</sup> itself, such as “Safari”, may not open.

If thousands of Cookies are stored on your Hard Drive, you may experience sluggish Browser behavior.

Because of all this, it's a good idea to delete the Cookies from your Browser, from time-to-time. Here's how to do this in “Safari”:

- 1 - Open the “Safari” program.
- 2 - Pull down the “Safari” menu and choose “Reset Safari...”.
- 3 - Using the dialog box that appears, click the “Reset” button.

**NOTE:** This method will also delete Safari's “History” (the pages you've previously visited) as well as Safari's Cache<sup>^</sup> files. If, for some reason, you don't want to remove all of these items, here are the steps to remove just the Cookies:

- 1 - Open the “Safari” program.
- 2 - Pull down the “Safari” menu and choose “Preferences...”.
- 3 - Click once on the “Security” button, located across the top in the “Toolbar”.
- 4 - Click the “Show Cookies” button.
- 5a -If you want to remove ALL the Cookies, click once on the “Remove All” button.
- 5b -If you want to remove one Cookie, click once on any entry in this list, then click the “Remove” button.
- 5c -If you want to remove more than one Cookie and they are contiguous (listed together), click once on the upper-most entry, scroll if you need to and then hold down the “Shift” key. Now click once on the lower-most entry. Release the “Shift” key and click the “Remove” button.
- 5d -If you want to remove more than one Cookie and they are NOT contiguous, click once on one of the entries, hold down the “Command” (“Apple”) key and then click on any other entry you want to add to this now-highlighted group. (Scroll if you need

## 136 Fixing The Modules

to and continue clicking while the Command key is down.) Click the “Remove” button.

6 - Click the “Done” button when finished.



## Clear Browser History

Browser^ “History” is a listing of the web pages you have visited with a particular Browser, such as Apple’s “Safari”.

Sometimes, a large History list can slow down the Browser. If any of the History entries is corrupted (mixed up), the Browser may experience a slowness or problematic behavior.

Here are the steps to remove the entries within “Safari’s” History:

- 1 - Open the “Safari” program.
- 2 - Pull down the “History” menu and choose “Clear History”.

NOTE: “Safari” offers a way to delete all entries within its Cookies^, Cache^ and History with one action. Here’s how to do it:

- 1 - Open the “Safari” program.
- 2 - Pull down the “Safari” menu and choose “Reset Safari...”.
- 3 - Click the “Reset” button.

# 138 Fixing The Modules

## Reinstall Browser

Sometimes a single program, such as the Browser^, can become corrupted (mixed up) and cause several problems. When this happens, reinstall the program from a fresh, unused copy.

**WARNING:** Before continuing, it may be a good idea to backup (to a CD, DVD, external Hard Drive or Flash Drive) any items you are about to Trash.

Here are the steps for reinstalling “Safari” under “Tiger” (Mac OS X 10.4):

- 1 - Locate the “Mac OS X Tiger” “Install DVD” and insert it into the Mac’s optical drive.
- 2 - Double-click the “Optional Installs.mpkg” icon. (It may be hidden from view, so you may need to scroll down a bit.)
- 3 - Once the “Installer” program opens, navigate through its dialog boxes until you come to “Custom Install on...”.
- 4 - Click once on the “Disclosure Triangle^”, which is located to the left of “Applications”.
- 5 - From the list that appears, click once (in order to place a checkmark) in the square located to the left of “Safari”.
- 6 - Click the “Install” button.

For more information on this procedure, see this Apple Support page:  
<http://docs.info.apple.com/article.html?artnum=301229>

**NOTE:** If your Macintosh is using “Panther”, Mac OS X 10.3, one way to reinstall “Safari” is to reinstall the Operating System^. (This will also add fresh copies of those pieces to the Hard Drive.) To do this, see “FIXING THE MODULES” > “Archive and Install Mac OS X”.

## **Update Browser**

REINSTALLING the same Browser<sup>^</sup> version will solve any problems relating to it being corrupted (mixed up). UPDATING the Browser will not only accomplish this but may also add new web-based technologies or increase the version of the Browser's current technologies, such as Java, Flash, etc.

So, if a feature of a web page is not working properly or certain web page elements don't appear at all, see if there is an update for your Browser. (For "Safari", visit Apple's website, [www.apple.com](http://www.apple.com), click on the "Support" link at the top, then click the "Downloads" link, located about half-way down that page.)

# 140 Fixing The Modules

## Check Universal Access

If the images on the Screen^ do not have any color (they're black & white or gray), check the settings in "Universal Access".

- 1 - Pull down the "Apple" menu and choose "System Preferences...".
- 2 - In the window that appears, click once on the "Universal Access" icon.
- 3 - Near the top of this dialog box, you'll see a row of buttons. Click the "Seeing" button.
- 4 - Be sure the button next to "Black on White" is chosen.
- 5 - Be sure there is NOT a checkmark in the box next to "Use grayscale".
- 6 - Close this dialog box.

## **Contact ISP support for problems**

Sometimes a problem isn't your problem. It's possible for Internet- or eMail-related problems to originate on the Internet itself or within the technology which is used and maintained by your ISP (Internet Service Provider).

Occasionally, an ISP will close or limit one or more of their services, in order perform maintenance (change computers, upgrade technologies, etc.) or because their computers are trying to deal with viruses^ or hackers^. Because your computer must navigate out of your building, across town and through your ISP's computers, just to access the Internet or eMail, if your ISP stops one of those services your Macintosh will not be able to access that information.

If you suspect the problem is not within your computer, Modem, Router or any of their associated cables, you may want to contact your ISP's tech support department and ask if they are performing any maintenance functions.

## 142 Fixing The Modules

### **Contact Router support for help**

A slowness or other problem with the Internet or your eMail service can be caused by any number of variables. If you've verified the other troubleshooting ideas listed in this book, for your problem, you may want to contact the Router manufacturer's tech support department. There could be a setting which you didn't know about or a previous setting may have reverted back to a factory default<sup>^</sup>. Because the technologies offered and controlled by a Router can be extremely confusing, it's best to ask their tech support people how those features should be set. Guessing and setting any function the wrong way will quickly complicate things. So don't assume you know what a specific technology is. For example, when you see "MAC" within a Router's settings, it is not referring to "Macintosh". MAC stands for "Media Access Control".

## **Modem Hardware problem**

If you're having a problem accessing the Internet and Sending and Receiving eMail AND you've tried the other suggestions in this book, then there may be a physical problem with the Modem itself.

NOTE: It's very easy to overlook something, especially when so many factors can influence non-existent or erratic Internet and eMail services. Before coming to the conclusion that the Modem is physically at fault, be sure you have contacted its manufacturer.

## 144 What Caused The Problem?



What Caused The Problem?	145
Bad Electricity	145
Batteries (desktop Macs)	145
Poorly-Written Software	146
USB Device	146
RAM (memory)	147



Once the problem is resolved, it's a good idea to determine what caused it, so this situation can be avoided, or at least its possibility can be reduced, in the future. Here are a few areas where problems can start:

### **Bad electricity**

Most of us are familiar with the idea that TOO MUCH electricity is bad for computers. However, NOT ENOUGH electricity can also cause certain problems. As the electricity in your building fluctuates throughout the day, you might not even notice the lights flickering but the sensitive computer MAY still be affected. If the Macintosh receives TOO LITTLE electricity, even for a split-second, some of its Software MAY become corrupted (mixed up). To prevent this, your Macintosh and its peripherals (Printer, Monitor^, external Hard Drive, etc.) should be connected to a UPS^ (Uninterruptible Power Supply). (See "GENERAL DOs AND DON'Ts" > "Use a UPS" for more information.)

### **Batteries (desktop Macs):**

Inside each desktop Macintosh (not a PORTABLE), you'll find a "Clock" or "PRAM^" battery. On some Macintosh models, if this battery is depleted, the Macintosh will not start. On other models, they will still start, their clocks will just show the wrong date and time. Sometimes, you may also find that the Macintosh will not print.

Some Macintosh models can be opened, by you (the User), so you can replace the battery. If battery replacement is not covered in the documentation which came with your Macintosh, check Apple's "Support" page online. Over the years, Apple has only used a handful of different batteries in its desktop Macs, so you'll not only need to know if your Macintosh can be opened by the User (without voiding the warranty) but you'll have to locate the battery specifications, so you'll know which one to buy.

**NOTE:** Sometimes a desktop Macintosh will not start after replacing the battery — even if it was starting up previously. In this case, press the CUDA^ switch once. (Pressing this button more than once during a 1-minute block of time could cause serious problems.) This Apple web page explains where the Macintosh G3, G4 and G5

## 146 What Caused The Problem?

“CUDA buttons” are located:

<http://docs.info.apple.com/article.html?artnum=86760#where>  
(It doesn't look as though Intel-based Macs have a “CUDA button”.)

### Poorly-written Software

Although there is a lot of great Software out there, sometimes you'll run across a program which wasn't written as well as it should have been. “Shareware” (try before you buy) and “Freeware” programs are the most suspect. If you use such programs, this could have been the cause of the problem — even if you've been using that program for many months and even if the problem was actually with a different program. (Sometimes a poorly-written program can cause another program to have problems. When this happens, it will look as though the problematic program should be removed or updated. If you replace or update the problematic program, it may look as though everything is working fine again. However, it may take another 6-months before the problem is seen again. Sometimes it takes a specific combination of events, behind the scenes, before a problem will occur.

- Another aspect of poorly-written Software: Most programs are self-contained. Within its single file, folder or Package, it has access to all the information it needs to perform all its functions. Some programs require MORE or DIFFERENT resources and may place one or more files within your Mac's Operating System^ folders. The good news here is that this program can perform its tasks more efficiently. The bad news is this has the POSSIBILITY to cause conflicts behind the scenes. Searching your Mac's Hard Drive or poking around in various Operating System folders may not tell you if a program has placed any files there — program “XYZ” may not use the letters “xyz” in those extra pieces. If you want to find out if any of your current Software has done this, your best bet would be to contact that program's manufacturer.

### USB^ device

If a Macintosh won't start, partially starts, won't go to sleep, won't wake from sleep, etc., the problem MAY be because of a device connected to it. The various problems which a faulty USB device can cause are not limited to these. This is why one of the first things to try is to remove ALL devices from your Macintosh. Of course, even keyboards and mice can be suspect but since you'll need them to control your Macintosh once it's started, these two devices are left connected.

NOTE: It is possible to start up a Macintosh WITHOUT having the keyboard or mouse connected. This may be something you WILL want to do. You can always connect one of those items, work with it for a few minutes and then connect the other. Approaching the RE-CONNECTING OF DEVICES in this way, may help you discover if one of them is causing a problem.

### **RAM (memory)**

This is probably the most difficult problem to narrow down. Although all RAM modules have no moving parts and most of them come with a lifetime warranty, then can still become faulty. When they do, the problems they exhibit will be erratic.

What's Connected To What?	149
Macintosh	149
Monitor/Display	150
A Program (Software, Application)	151
Keyboard and Mouse (WIRELESS)	152
Inkjet Printer, Scanner, Camera	152
External Hard Drive	155

In order to be a good troubleshooting detective, you should understand what technologies are affected by which devices and programs. Here is a general list of technologies and what affects them.

## Macintosh

- Affected by Electricity: Although TOO MUCH electricity can damage the delicate circuits inside a computer, TOO LITTLE electricity can corrupt (mix up) Software. (See “WHAT CAUSED THE PROBLEM?: Bad electricity” for more information.)
- Affected by USB^ devices: Sometimes a USB device can behave erratically and keep a Macintosh from starting up, going to Sleep and/or waking from Sleep. Disconnect all devices from the Mac and see if that solves the problem.

NOTE: If you are using a WIRELESS keyboard or mouse, you may want to connect a WIRED version, if you have access to one, in order to test things.

- Affected by RAM: “Bad RAM” will cause erratic problems. When RAM is the root of the problem look for:
  - Δ problems which are difficult to reproduce, and
  - Δ problems which seem to pop up in different technologies (starting the Mac, opening programs, putting the Mac to Sleep, strange images or wrong colors on the Screen^, etc).
- Affected by Software: The “Operating System^” is the largest piece of Software inside the Macintosh and controls all functions and devices connected to it. Probably 90% of MOST problems are related to “Software”. See “FIXING THE MODULES” > “Archive and Install Mac OS X” if you suspect this is where the problem is.
- Affected by Heat: Computers don’t like too much heat. They work better under cool conditions. If your environment is extremely hot or if the sun is beating down directly onto the Macintosh, this may be contributing to one or more problems.
- Affected by the Battery: Portable Macs have a large-capacity battery which allow them to for several hours. Each desktop Mac has a much smaller battery known as a “Clock Battery” or “PRAM^ Battery”. This battery keeps track of

## 150 What's Connected To What?

the day, date and a few other settings, while the Macintosh is OFF. (See “FIXING THE MODULES” > “Replace the PRAM/Clock/Backup battery” for more information.)

**NOTE:** Most Macs contain fans. Some fans spin at various speeds, depending on how much cooling is required. If one or more fans is mechanically faulty or if the Software (part of the Operating System^) which controls them is corrupted (mixed up), this can also cause the Macintosh to overheat and behave erratically.

- **Affected by: Dust/Smoke.** Computers don't like dust, smoke or other coating elements which can be carried through the air. Too many air-borne particles, or a few over a long period of time, can coat the delicate circuits inside a computer. A thick enough coating in the wrong places can cause the computer to overheat. If you cannot open or are not comfortable opening your Macintosh, you may want to have a qualified service technician clean out the inside.
- **Affected by Insects/Mice.** Yes, I've even heard of situations where ants and mice would find their way inside a computer. If they gnaw through cables or cause organic matter to heat up and dissolve on various circuitboards, this could lead to the computer's overheating or it could even short out some circuitry. If you suspect this is where the problem is, you may want to open the Macintosh yourself or have a qualified service technician clean it out for you.

### Monitor/Display

- **Affected by Software:** Although most Monitors^ will simply work, when connected to a Macintosh, there may be special features which a particular Monitor cannot offer without access to its own Software. Also, some Monitors require calibration to perform at their optimum. If you do not do this part of the Monitor's setup, it may not display the correct colors, saturation and geometries (correctly proportioned images) at all times.
- **Affected by Electricity:** Some Monitors are sensitive to strong electrical and magnetic fields. One configuration, which I've seen a few times over the years, is when someone has placed their surge protector on the desk just a few inches from the Monitor — behind or beside it, didn't seem to make much

difference. In these cases, the image on the Screen^ would slowly waver, or ripple, every few seconds. Over time, this will probably damage the Monitor but catching it up front, you can simply move all electrical connections away from the Monitor and computer.

- **Affected by Lighting:** If the colors on the Screen look washed out, it may be because the Monitor is wearing out or it could be because of the lighting in the room. If sunlight is beaming directly onto the Screen, it can cause a color and/or saturation change. If your room had incandescent lighting and has recently been switched over to fluorescent lighting (or vice versa), this could also affect the colors and intensity of everything displayed.

## **A Program (Software, Application)**

- **Affected by Itself:** If there is a problem with a particular program, replace it. Most programs can simply be re-installed on top of the current version. In those cases, the Installer should replace LIKE-FOR-LIKE and give you fresh, reliable copies of all the program's pieces when done.

Some programs can simply be dragged to the Trash, empty the Trash and then install that program again. Other programs have more pieces in other places (some may even be invisible). Removing this type of program MANU-ALLY can be nearly impossible. In those situations, the program's "Installer" may have an "Un-Install" option. Otherwise, you may have to contact the company which created it and ask how you should re-install their Software.

- **Affected by The Operating System^:** If the problem isn't fixed by replacing the program, you may want to look at re-installing the Operating System.
- **Affected by Settings:** Be sure to check Software settings. If a particular program isn't behaving properly, check any settings which can be adjusted within that program. These are usually found in the program's "Preferences" menu. Sometimes "System Preferences" (under the "Apple" menu) can also affect how various programs behave. So be sure to check those settings as well.
- **Affected by Peripherals:** External devices, connected to the Macintosh, can sometimes interfere with a program. Removing all devices from the Macintosh, except the keyboard and mouse, and then restarting, can sometimes solve a problem. (*see WARNING on next page*)

## 152 What's Connected To What?

**WARNING:** It's a good idea to NOT perform any other tasks during an installation process. It would be even better if the keyboard and mouse were not used and NO devices (CD, DVD, Flash Drive, etc.) were inserted/ejected or connected/disconnected.

### **Keyboard & Mouse (WIRELESS — no wires coming out of them)**

- **Affected by Batteries:** Check to see if the batteries inside the keyboard or mouse have been inserted properly. If the batteries are old, replace them.
- **Affected by Incorrect Batteries:** If your keyboard or mouse uses RECHARGEABLE batteries, you may want to replace them with the same type. If your keyboard or mouse has a recharging unit, the batteries in those devices **MUST** be replaced with RECHARGEABLE batteries. Putting regular, non-rechargeable batteries in a device which sometimes gets recharged, will ruin those batteries and may even damage the device as well as the recharging unit.
- **Affected by Physical changes or obstructions in its environment:** Test the keyboard or mouse on a computer in a different location if you can (another room or another building). If you can't, try moving the Macintosh, keyboard and mouse to different positions and angles from each other, to see if they work more reliably.

### **Inkjet Printer, Scanner, Camera**

- **Affected by Ink (1):** Inkjet printers use liquid ink which flows through very tiny tubes and is sprayed onto the paper via tiny nozzles. Most printer manufacturers recommend using the printer at least once a month, to keep the tiny ink system from drying out. If the printed page contains stripes of colors or white lines (usually horizontal lines, then the ink may not be flowing properly. Check the owner's manual or the manufacturer's website for information on how to FLUSH or CLEAN the ink system. (This is usually done with Software in the Macintosh.) If the printer has not been used in a very long time, or if the ink has dried out quickly because of environmental conditions, you may have to flush the ink system more than once. Keep in mind that each flush uses extra ink. So, it's possible to flush the ink system 20 times or more and see acceptable results only to learn the flushing has used all the ink in the tanks.



- **Affected by Ink (2):** Although some people say they've always used INK RE-FILL KITS or THIRD PARTY (not made by the manufacturer) ink, in my experience, I have seen more times where someone has tried to save money by using such ink, only to find their printer has been damaged after a few months of use. It's very unfortunate, because ink is very expensive, but after my more than 22-years of troubleshooting Macs, I find it really is better to buy the manufacturer's ink.

**NOTE:** If you find yourself using a lot of ink, you may want to think about how you're using the printer. Instead of printing every eMail and web page, see if saving that information as a file will work for your archival purposes. Although it's nice to have family photos printed out, instead of printing each one, why not print your "favorite of the month" and use the rest as your Mac's Desktop pattern or screen-saver? ("Apple" menu > "System Preferences...") Instead of printing an entire web page (including its colored background), just print the text you want (on a non-colored background):

- 1 - Highlight (drag across) the text you want to print.
- 2 - Pull down the "Edit" menu and choose "Copy".
- 3 - Click on the "Finder" icon in the Dock.
- 4 - Navigate to the "Applications" folder.
- 5 - Open Apple's "TextEdit" program.
- 6 - Pull down the "Edit" menu and choose "Paste".
- 7 - Pull down the "Format" menu and choose "Make Plain Text".  
(Click "OK" in the question "Do you want to convert this text?")  
This step removes colors, strange text and most formatting.
- 8 - Pull down the "Format" menu and choose "Make Rich Text".  
(This step changes the text back to an easier to read format.)
- 9 - Pull down the "File" menu and choose "Print..."

- **Affected by The printhead:** If the quality of the printout is faded the Printhead may be worn out or damaged. With some printer models, you can buy a replacement Printhead but with others you cannot. Check your owner's manual or contact the manufacturer to see if the Printhead needs to be replaced and if it's possible to replace it yourself. If they tell you it can only be replaced by a

## 154 What's Connected To What?

qualified service technician, you may want to shop around for a new printer. Unfortunately, sometimes the cost of a new printer will be less expensive than fixing an old one.

- **Affected by Software:** If the Macintosh doesn't recognize the Printer, Scanner, Camera, etc., the problem could be with its Software.

**NOTE:** Since the Software for most devices is already a part of the Mac's Operating System<sup>^</sup>, it's possible that the printer Software, or some other Operating System Software used by the printer, has become corrupted (mixed up). In this case, if replacing the printer's Software (see below) doesn't solve the problem, you may want to re-install the Operating System. (See "FIXING THE MODULES > "Archive and Install Mac OS X" for details.)

Some external devices, such as printers, require "Drivers<sup>^</sup>". Make sure the version of the device's Software works with the version of the Mac's Operating System. Do this by visiting the manufacturer's website and looking for the "System Requirements" for the specific device you have — usually the model number is all you'll need.

**NOTE:** This may mean you should use an older version of the printer's Software. If your Macintosh is using an older version of the Operating System, you may have to DOWNGRADE the Software being used by the printer.

- **Affected by A Hub<sup>^</sup>:** If you have a USB<sup>^</sup> device connected to a USB Hub, the Hub could be the problem. I've done troubleshooting more than a few times where this has happened. The customer swore the Hub has worked fine for many months but after taking the printer's USB cable out of the Hub and connecting it directly into the Macintosh, the printer started working again. So, if a Hub is involved, take it out of the circuit. Plug the USB cables, for all those devices, directly into the Macintosh. For those devices which have their own electrical cable, their USB cable can be plugged into the USB port on the keyboard — if one is available.

- **Affected by Ports:** Sometimes a Port can go bad. This is rare but it can happen. To test this, simply unplug the device's USB cable from the Macintosh (or the keyboard, if that's where it's connected) and connect it to a different USB port.

If you need a second opinion on whether the USB Port is not working, open the "System Profiler" program. It should be inside your "Utilities" folder. You can also access this program by:

- 1 - Pulling down the "Apple" menu.
- 2 - Choosing "About This Mac".
- 3 - and then clicking on the button called "More Info..."

## External Hard Drive

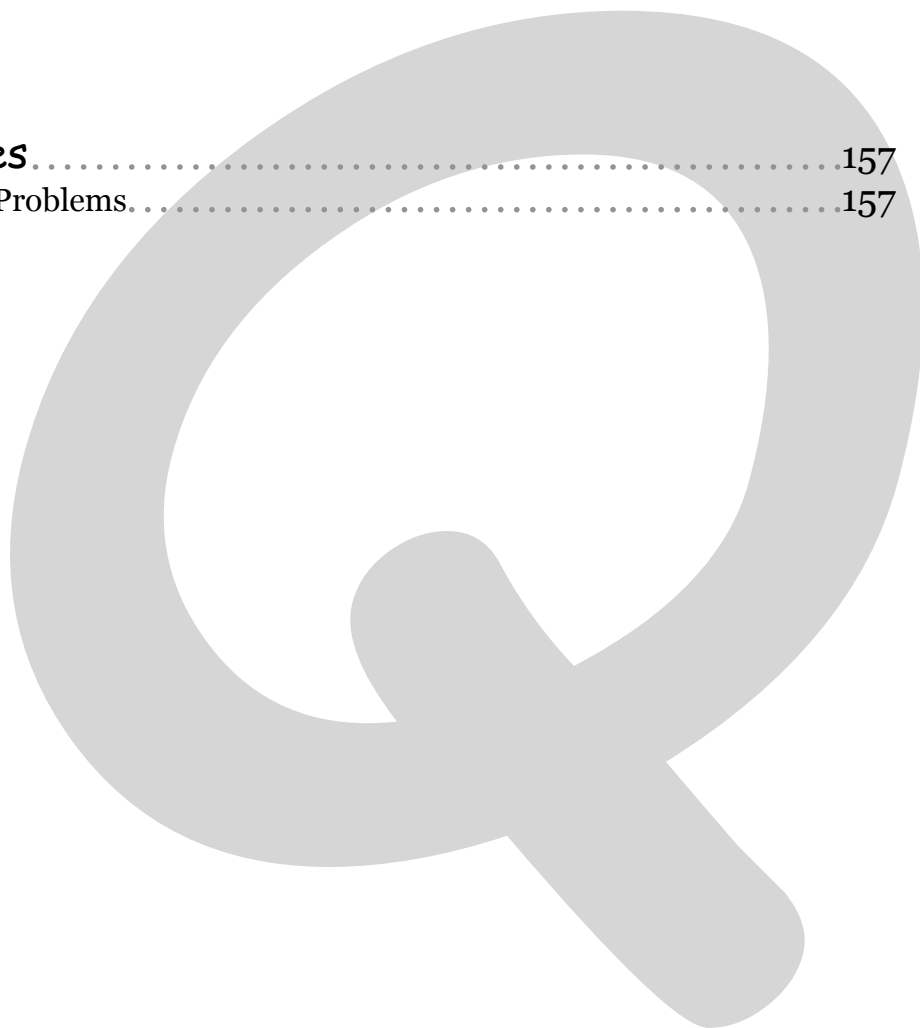
- **Affected by Software:** These days, most external Hard Drives will be automatically recognized by the Macintosh when they are connected and turned ON. However, there may be a model of Hard Drive which requires special Software. In this case, be sure the version of the Software being used by the external Hard Drive is compatible with the version of the Operating System being used by the Macintosh. (Check the manufacturer's website for "System Requirements".)

**NOTE:** This may require you to use an older version of the Hard Drive's Software. If your Macintosh is using an older version of the Operating System, you may have to DOWNGRADE the Software being used by the external Hard Drive.

- **Affected by Ports:** Sometimes a Port can go bad. This is rare but it can happen. To test this, simply unplug the external Hard Drive's USB^ or FireWire cable (whichever it uses) from the Macintosh (or the keyboard, if that's where it's connected) and connect it to a different USB or FireWire port.

# 156 Quick Fixes

Quick Fixes.....	157
Cures Most Problems.....	157



NOTE: The following steps are meant as memory joggers — those times when you need to remember a few basic MODULES and how to solve most Macintosh problems.

## Cures Most Problems

NOTE: Because of the short descriptions below, it should only be used by Macintosh troubleshooting experts or those who understand the terminology and simply need a quick reminder as to the various procedures which should be performed.

After each suggestion below, Restart the Mac (if necessary) and try to recreate the problem. If the problem still exists, continue with the next suggestion.

- Shut down the Macintosh and remove ALL devices except the keyboard, mouse and Monitor^ (The Macintosh does not have to be OFF, in order to connect and disconnect external USB^ and FireWire^ devices. However, in this case, it's a good idea for the Mac to be shut down before continuing, so it might as well be OFF when the external devices are disconnected.) (If the Macintosh is a portable, then be sure to remove ALL devices — including the keyboard, mouse and Monitor, if they are attached to that Mac's external connectors.
- Run DiskWarrior (If you purchased it.)
- Repair Permissions (The Macintosh doesn't have to be Restarted after this procedure.)
- Reinstall the current system's COMBO update.
- Create another user, log into this account to see if the problem still exists.
- Archive and Install Mac OS X.
- Install Mac OS X (without Archiving)
- Zap^ the PRAM^ and/or replace the Clock/PRAM battery
- If the Macintosh has had extra RAM added, it might be a good idea to remove it — especially if the extra RAM is “generic” and not “name brand” RAM.
- Erase and Install Mac OS X

# 158 Who To Turn To?

Who To Turn To?..... 159

If you've tried everything in this book but the problem persists, it MAY be because:

- You might have missed a step or didn't have the Macintosh in a BASIC ENOUGH state before starting — such as disabling anti-virus Software (if you use it) or disconnecting ALL cables.
- Your Macintosh MAY have a “Hardware” problem and not a “Software” problem.

If you do decide to contact a company or person to assist you, be sure to have this information at your fingertips:

- Which Macintosh model do you have? (iMac Core 2 Duo, MacPro, etc.)
- How fast is your Mac's processor? (2GHz, 2.66GHz, etc.)
- Which Operating System^ version is your Mac using? (Mac OS X 10.4.10, etc.)
- How much RAM (memory) does your Macintosh have? (1GB, 1.5GB, etc.)

Most of the above information can be found by pulling down the “Apple” menu and choosing “About This Mac”.

The MODEL information can usually be found in the “System Profiler” program. The quickest way to open it is from right there in the “About This Mac” window — just click the “More Info...” button. In the “System Profiler”, under the “Hardware” category (on the left), you should see “Machine Name:” on the right and next to this should be your Mac's model name.

Here are some suggestions regarding who you could contact for further assistance...

- If you live in an area which has a Macintosh user's group, attend one of their meetings and ask if they have any feedback on how to solve your Mac's problem. Macintosh user's group members are a great pool of knowledge. If you can ask your question during their Question and Answer time, you'll not only get input from a wide range of experience but also unbiased answers.
- If your Macintosh is still under warranty, contact an Apple-authorized repair facility that can provide service under that warranty. If your Mac is no longer

## 160 Who To Turn To?

under Apple warranty, you can use the services of an Apple-authorized or non-Apple-authorized repair shop.

**NOTE:** Whether your Macintosh is under warranty or not, you want someone reliable to work on it. If you contact Apple, they will always recommend your local, Apple-authorized service centers. However, just because a business is “Apple-authorized” doesn’t mean they offer reliable service and fair pricing. (I’m not referring to Apple’s own stores. I’m referring to independent businesses which are approved by Apple to service Macintosh computers.) So how to you know which local store is reliable?... Ask your friends, neighbors and business acquaintances for recommendations. Also attend a local Macintosh User’s Group meeting (if they’re offered in your area) and ask those in attendance who they would bring their Macintosh to for repair. Also... Someone’s single “bad” or “good” experience doesn’t necessarily make that company “bad” or “good”. Ask if those people have had repairs done by that company more than once.

- Sometimes the easiest and most obvious solution is the best. For example, if you think you have a printer problem, contact the printer’s manufacturer. No matter which manufacture you turn to, if they suggest some troubleshooting ideas, and you’ve already done them yourself, you might want to go ahead and try them again. Be sure to follow their steps and make note of any changes in your Mac’s situation. You must be their eyes, ears and nose. So be sure to continually state what the Macintosh, and YOU, are doing. Sometimes, what may seem to be insignificant to you, may be exactly the clue they were looking for.

Even if a manufacturer’s tech support department offers some troubleshooting suggestions, don’t be surprised if they tell you to contact another company. If they do, they will usually tell you to contact Apple. Whether you contact Apple first or second, Apple’s tech support team may also tell you to contact a different company. It can become extremely frustrating when every company you contact tells you to contact another company. Then what do you do?



Contacting an independent Macintosh technician, such as myself, or an Apple-authorized service center can troubleshoot your Mac's ENTIRE configuration. Most independent technicians travel to your location. When I do this, it gives me a chance to use all of my senses to resolve the problem:

- **Seeing:** To notice if the Screen^ flashed or flickered on startup. I would also notice your Mac's electrical situation to see if it was plugged directly into a UPS^ (Uninterruptible Power Supply — basically a surge protector with a battery). (See "GENERAL DOs AND DON'Ts" > "Use a UPS" for more information.)
- **Hearing:** To distinguish the Hard Drive's normal scratching sound from the sound of a ping pong ball bouncing on a hard wooden table. (This is usually the sound of the Hard Drive going bad.) Sometimes, it's possible to hear a PATTERN of sounds coming from the Hard Drive or optical drive. A continual pattern of sound usually means the process is STUCK — caught in a loop. (In this type of situation, if you can't stop the process any other way, you may simply want to hold the Mac's Power Button (its ON / OFF button) in for at least 10-seconds. This will force the Macintosh to shut down.)
- **Smell:** To notice the difference between a NEW COMPUTER smell and the scent of burning plastic. (Some early iMac G5 models had bad capacitors and would sometimes overheat and melt.)

If your Hard Drive needs to be replaced and you have information stored on it, which you have not backed up, there are services such as "Drive Savers" ([www.drivesavers.com](http://www.drivesavers.com), 800-440-1904) that MAY be able to copy the data from your Hard Drive, place it onto a CD or DVD and send it to you.

NOTE: I have never tried Drive Savers and don't know anyone who has.

If you have an iPod or Macintosh portable (iBook, MacBook, MacBook Pro, etc.) which needs Hardware repair, here are some suggestions. (If the Hard Drive has to be replaced, these companies can also retrieve your data — if possible):

- iResQ - [www.iresq.com](http://www.iresq.com), 888-447-3728

They also repair the Mac mini

I have personally used their services to replace a Hard Drive in my wife's iBook G4. Service was fine and the price was fair.

## 162 Who To Turn To?

- TechRestore - [www.techrestore.com](http://www.techrestore.com), 888-647-3786

They also repair Apple's Xserve

I have never used TechRestore. I know of one person who was happy with their services.

If you need information, so you can repair the Macintosh yourself, here are some suggestions:

- Apple Repair Manuals - [www.applerepairmanuals.com](http://www.applerepairmanuals.com)
- iFixit - [www.ifixit.com/Guide](http://www.ifixit.com/Guide)

If you need replacement parts, so you can repair the Macintosh yourself, here are some suggestions:

- iFixit - [www.ifixit.com](http://www.ifixit.com), 866-613-4948

I have never tried iFixit and don't know anyone who has.

- We Love Macs - [www.welovemacs.com](http://www.welovemacs.com), 800-588-5290

I have never tried We Love Macs and don't know anyone who has.

## General Dos And Dont's

No food or drink near the computer .....	164
Use a UPS .....	165
Check UPS .....	166
Ground the electrical outlet .....	166
A basic rule about Mac OS X is.....	167

## 164 General Dos And Dont's

### **No food or drink near the computer**

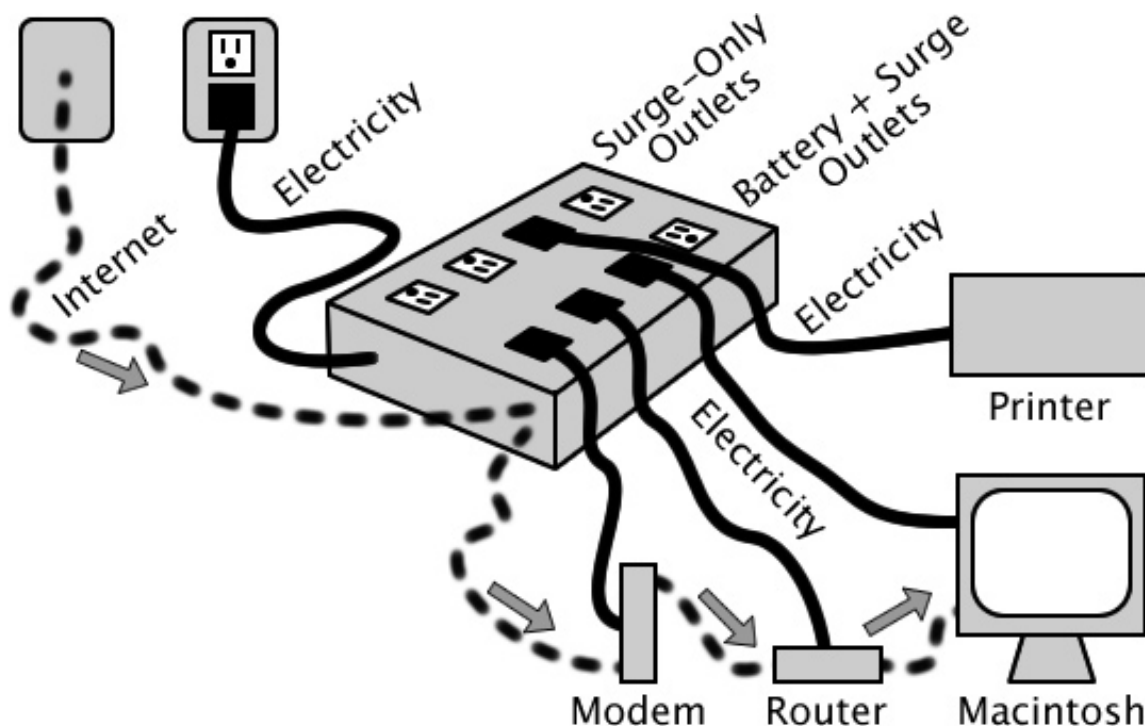
Although it's very convenient and "I'm only going to set my drink here for a second", if you force yourself and others using your Macintosh to adopt the NO FOOD OR DRINK policy as a HABIT, you and your Mac will be much better off.

I've heard of several instances where someone knocked over a glass or coffee mug and ruined their computer. Even crumbs and other dry debris can become lodged under the keys of a keyboard and cause the keys to stick, etc.

Years ago, I visited a friend who was a very knowledgeable computer person and knew not to place any liquid near his computer. However, on this particular day, he was drinking from a small glass and had set it down on the top of a bookcase which sat BESIDE his computer desk. The liquid was now away from the computer and we all thought nothing of it... Until he began explaining something. At this point, I was sitting at his computer and he was standing about a foot past the glass. He suddenly reached across the bookcase to get a book, hit the glass and its entire contents splashed out onto his desk. Fortunately, none of the liquid touched the computer or his Monitor^, but these were the days of the 5.25-inch FLOPPY DISK and the liquid ruined a few of the programs stored on them.

In early 2007, a customer phoned to say she placed a glass of water next to her iBook, walked out of the room for just a second and her baby knocked the water into the Macintosh.

## Use a UPS



Although using a surge protector is much better than connecting your Mac's electrical cable directly to a wall outlet, a UPS<sup>^</sup> is the best electrical investment you can make for your Macintosh. A "Surge Protector", especially one which is GUARANTEED, will protect your Mac against TOO MUCH electricity. However, TOO LITTLE electricity, even for a split-second, can corrupt (mix up) Software (programs) and documents (eMail messages, photos, etc.).

Basically, an "Uninterruptible Power Supply" is a surge protector with a powerful battery. This type of unit will keep the electricity constant.

When buying a UPS, be sure it has enough battery power to carry the electrical load of all the equipment you'll be connecting to it. Over the years, I've found "APC" (American Power Conversion) to be the best brand. (I've used their surge protectors and UPS units for several years.) Go to their website ([www.apc.com](http://www.apc.com)) and use their "UPS Selector". It will tell you the minimum model to purchase for your computer configuration.

## 166 General Dos And Dont's

Some UPS units provide connectors for DSL (telephone company) or Cable modems. Connecting the appropriate cables to these ports means, if any surge comes through that line, it will be stopped inside the UPS and your Macintosh will be protected. Connect the Internet cable, at the wall, to the “IN” port on the UPS. Connect another cable from the “OUT” port on the UPS to the Modem. (If you have a Router, Switch or Ethernet Hub^, another cable is used to connect the Modem to this unit. Then, use one more cable to connect this unit to the Macintosh.)

Don't place the UPS unit next to the Macintosh or the Mac's Monitor. This can create distorted images on the Screen^ and other problems for the Macintosh.

### **Check UPS**

Before using a UPS, be sure to read the instructions carefully. These units are typically shipped with one of their battery wires disconnected. This means you must connect this wire before the UPS can completely do its job.

It's also a good idea to check the documentation so you'll know how long the battery is supposed to last and how to test it. Usually, the batteries last 3- to 5-years and it's a good idea to test them every so often — maybe on a 6-month cycle. If a UPS battery is depleted, your Macintosh will not be protected from TOO LITTLE electricity but its surge suppressor technology will should still protect your Macintosh from TOO MUCH. Check the product's documentation or contact the manufacturer if you're not sure.

If the battery is drained or the Macintosh shuts down when the UPS is only operating on its battery, be sure motorized devices are not connected to its battery outlets. Because motors (like the ones in printers, scanners, pencil sharpeners and paper shredders) deplete batteries very quickly, don't plug them into the battery outlets in the UPS. Since most UPS units contain battery-powered and non-battery-powered outlets, connect all motorized devices to the non-battery outlets. The UPS should still protect those devices from TOO MUCH electricity.

### **Ground the electrical outlet**

Even the most powerful surge protector and UPS (Uninterruptible Power Supply) cannot do its job if the outlet it's connected to is not grounded.

**WARNING:** Just because an electrical outlet has 3-prongs, doesn't mean it is truly GROUNDED. And just because one outlet is grounded, doesn't mean the other half is also providing this protection. I have seen a typical double (top and bottom) electrical outlet which tested as GROUNDED on the top but not on the bottom. So be sure to check ALL the outlets you will be using.

Most Surge Protectors and UPS units have "Fault Wiring" indicators. Follow their instructions and they should instantly tell you whether an outlet is grounded or not.

If you need to have an outlet grounded, contact a qualified electrician. If you don't want to have the entire house grounded, they should be able to ground one outlet.

### **A basic rule about Mac OS X is...**

Don't move, rename or delete any item (file, folder, etc.) which you did not create or add directly, from a CD or download from the Internet or as an eMail attachment. Doing so, may cause the Macintosh to behave erratically or not start.

<b>Maintenance</b> .....	169
Backup Your Work .....	169
Saving Your eMail Messages .....	170
Run DiskWarrior ( <a href="http://www.alsoft.com">www.alsoft.com</a> ) .....	171
Repair Permissions .....	172
Cleaning The Screen .....	173



To keep things running smoothly, it's a good idea to perform a few basic functions on a regular basis...

## Backup Your Work

This cannot be stressed enough. Even with Software which will automatically backup your important files, be sure those backups are made on something which is not mechanical (such as a Hard Drive, even if it is external) and which is not permanently connected to your Macintosh. (Copying your documents to a CD or Flash Drive and then leaving it in your Mac, isn't the best way to store your data.) The reason you need to get a copy of your important information AWAY from your Mac's internal Hard Drive is in case something goes wrong with it. If your Mac develops an electrical short or if there's an electrical surge within your building, your Macintosh and everything connected to it MAY be damaged. If you have an external Hard Drive, Flash Drive or CD connected when this happens, they MAY also be damaged.

As for WHEN you should back up your data... If your Macintosh is used for business purposes or you are creating or gathering important information, you could perform your backups on a daily or weekly cycle. Otherwise, depending on how much information you create and / or gather, you may want to backup on a monthly basis.

Apple Knowledgebase^ article 301239 explains how to back up some important information which is sometimes overlooked. This article covers:

- Safari bookmarks,
- Address Book contacts,
- iCal calendars,
- Keychains (passwords) and
- Mail preferences and messages.

**WARNING:** If you suspect the Hard Drive of having serious physical problems, then back up your data AS SOON AS POSSIBLE. These problems would be things like:

- An installation fails and a message informs you of a DISK ERROR, or

# 170 Maintenance

- The Hard Drive makes a faint pattern of scratch, scratch, scratch, pause and repeat, or
- If you hear a sound from within the Macintosh which sounds like a ping-pong ball bouncing on a wooden table)

Under these conditions, the more the Hard Drive is taxed, the shorter its life span will be and it may stop working completely before you have a chance to back up your important documents.

## Saving Your eMail Messages

NOTE: Regarding your Apple's "Mail" program... The above Apple Knowledgebase^ article explains how to backup "Mail" settings but not eMail messages.

Here are the steps for backing up SOME and ALL of your eMail messages...

If you have a small number of messages to back up, use these steps:

- 1 - You should backup any messages which are important to you. If you are undecided on whether to save a specific message, always err on the side of SAVING it — you can always throw it away later. So, start by clicking once on one of the messages you want to save.

NOTE: You CAN use the Shift key (to select consecutive messages) or the Command (Apple) key (to select non-consecutive messages), in order to select (highlight) more than one message. However, when these are saved in this way, as a group, all the messages will be appended, one after the other, in the same file and will all appear in the same window when viewed. This may or may not be something you want to do. This can be especially confusing if all the messages are from different sources and pertain to different subjects.

- 2 - Pull down the "File" menu and choose "Save As..."
- 3 - In the "Save As" dialog box that appears, navigate to the folder where this

message should be stored — the “Documents” folder is probably the best. If you’d like to keep this new message separate from other items in the “Documents” folder, use this dialog box to create another folder WITHIN the “Documents” folder and store that message in there.

- 4 - Once all your important messages are backed up, out of the “Mail” program, it would be a good idea to get them out of the computer. Do this by “Burning” a CD or dragging those messages to a Flash Drive or external Hard Drive.
- 5 - Using the media you just stored those messages onto, spot check a few of them and be absolutely sure the message (and any attachments) are safely stored on something other than your Mac’s internal Hard Drive. If you have access to another computer, use it verify that those messages are really backed up. (Verifying messages with the same computer they were backed up from can be confusing because it’s possible to THINK you have backed up something when you really did not.)

To back up ALL of your eMail messages, and other “Mail” settings, use these steps:

- 1 - Click once on the “Finder” icon, in the “Dock”.
- 2 - In the window that appears, click once on the “Home” icon.
- 3 - Open the “Library” folder.
- 4 - Insert a Flash Drive or blank CD or DVD.
- 5 - Drag the “Mail” folder from this window to the icon of the disc you’re going to use for backup.
- 6a - If you’re using a blank CD or DVD, click once on the disc’s icon, pull down the “File” menu and choose “Burn Disc...”.
- 6b - If you’re using a Flash Drive for storage, once the copying is complete, drag the disk’s icon to the Trash, wait for the Flash Drive to stop blinking and then remove it from the Macintosh.

### **Run DiskWarrior ([www.alsoft.com](http://www.alsoft.com))**

Since most Software problems stem from incorrect Directory^ information, running DiskWarrior on a regular (weekly, monthly or quarterly) basis is good preventative medicine. This program is the best tool for the job and can fix every Directory problem it finds.

## 172 Maintenance

NOTE: Probably the only time DiskWarrior can't do its job successfully, is when the Hard Drive has developed one or more bad Blocks (physical defects in the Hard Drive). DiskWarrior MAY inform you of this by displaying an alert box containing the "disk error" message or the program may simply stop working before it's finished. If bad Blocks^ are suspected, you should backup any important information and then perform a Low-Level format (erase) of the Hard Drive. (See "FIXING THE MODULES" . "Low-Level-Format the Hard Drive" for details.)

In doing its job, DiskWarrior creates an entirely new, problem-free Directory. This process also optimizes the Directory, making it more efficient.

In addition to running this program as a part of your maintenance routine, you should also run it before installing any important or large Software — especially Mac OS X. This will make sure the Directory is error-free and optimized.

Even if you just purchased a new Macintosh, run DiskWarrior on it. I was the Asheville, North Carolina Apple rep for several years. One of my jobs was to unbox new Macs and set them up for various retailers. I would run DiskWarrior on them, immediately after setting them up and lots of times (not every time) the Directory would be corrupted (mixed up).

(See "FIXING THE MODULES" > "Run DiskWarrior" for more information.)

### **Repair Permissions**

Lots of programs and files, but not all, have security settings (behind the scenes) which allow those items to be used or not used by you, the User. Mac OS X will lock (protect) various System-level files so you can't rename, re-locate or delete them. Doing so may disable a System function or may cause the Macintosh to not start. These security settings, or PERMISSIONS, can also be responsible for your ability to rename, re-locate and delete your own files and folders.

It's a good idea to repair your Mac's permissions BEFORE and AFTER installing programs. (This is done through the "Disk Utility" program.) Permissions can

sometimes be wrongly set during the installation of some Software.

(See “FIXING THE MODULES” > “Repair Permissions” for details.)

For Apple’s explanation of “Permissions”, visit this web page:

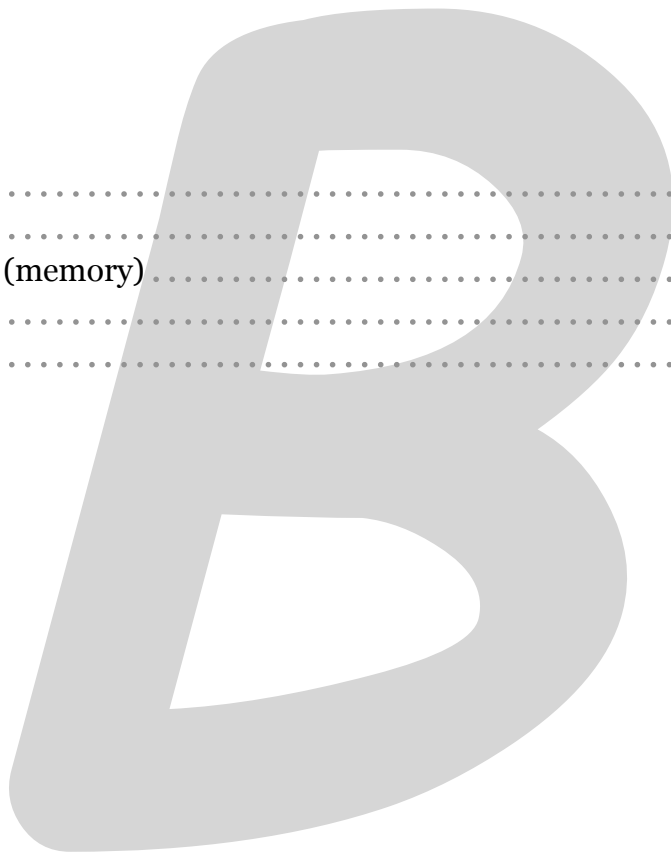
<http://docs.info.apple.com/article.html?artnum=25751>

## **Cleaning The Screen**

If you’re Mac’s Screen^ is not dirty, you obviously don’t have to clean it. The best way to tell if there IS any dust or dirt on the Screen is to put it to Sleep or shut it down. Now, you’ll be seeing a black Screen and any debris will be easier to find.

When cleaning a glass- or plastic-based computer Screen, NEVER use any cleaning product which contains AMMONIA or ALCOHOL. These cleaners can eat the protective antiglare and/or antistatic coating, which most Monitors^ have. (See “BUYING ADVICE” > “Screen Cleaner” for a great cleaner.)

<b>Buying Advice</b> .....	175
DiskWarrior .....	175
“Name-Brand” RAM (memory) .....	175
UPS .....	175
Screen Cleaner .....	175



Here are a few items which you may want to be sure you're using...

### **DiskWarrior ([www.alsoft.com](http://www.alsoft.com))**

- This diagnostic and repair utility is the best program of its kind. It can fix any problems found in a disk's "Directory Structure^".

### **"Name-Brand" RAM**

- "Generic" RAM usually means, the company selling you the RAM has purchased RAM modules from the lowest bidder. Generic RAM is sometimes purchased from smaller companies or companies which have not used the highest manufacturing standards or best RAM verification practices. Even cheap, low-quality RAM modules can be sold with a full lifetime warranty, but what does that really mean? It means, if that RAM module becomes faulty, the company you purchased it from or the manufacturer, will simply give you another identical module, in exchange for the faulty one. (see "FIXING THE MODULES" > "Verify RAM" for more information.)

### **UPS^ (Uninterruptible Power Supply)**

This is basically a surge protector with a battery.

NOTE: If you buy one of these units, I would buy it locally. Because the battery is fairly heavy, ordering a UPS via mail-order would attach a hefty shipping charge.

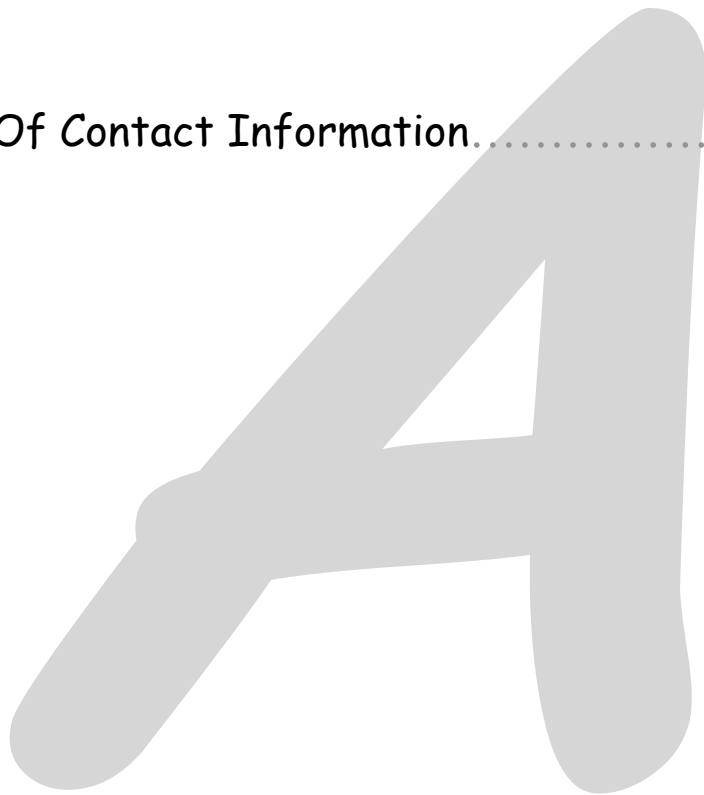
Although portable computers, such as the MacBook, contain a powerful battery, which they use when not connected to an electrical outlet, it might still be a good idea to purchase a UPS. Items such as a Modem, Router, USB^ Hub^ and external Hard Drive can benefit. Remember, your modem keeps you connected to the Internet. If the electricity fluctuates in your building, even for a split-second, your Internet connection may be broken. A UPS can keep this from happening. (See "GENERAL DOs AND DON'Ts" > "Use a UPS" for details on what this is and why you should use it.)

### **Screen Cleaner**

The best cleaner for computer Screens^, which I have ever known or used, is called "KlearScreen" and is made by Meridrew Enterprises ([www.klearscreen.com](http://www.klearscreen.com)).

## 176 A Summary Of Contact Information

A Summary Of Contact Information.....177





Here, in one location, is a list of the Internet addresses and telephone numbers already mentioned in this book...

For the repair of iPods and Macintosh portables:

- iResQ (888-447-3728)- [www.iresq.com](http://www.iresq.com)
- TechRestore (888-647-3786)- [www.techrestore.com](http://www.techrestore.com)

For information, so you can repair the Macintosh yourself:

- Apple Repair Manuals - [www.applerepairmanuals.com](http://www.applerepairmanuals.com)
- iFixit - [www.ifixit.com/Guide](http://www.ifixit.com/Guide)

For Macintosh replacement parts, so you can repair the Macintosh yourself:

- iFixit (866-613-4948)- [www.ifixit.com](http://www.ifixit.com)
- We Love Macs (800-588-5290) - [www.welovemacs.com](http://www.welovemacs.com)

To determine which UPS^ (Uninterruptible Power Supply) you need:

- APC (American Power Conversion) - [www.apc.com](http://www.apc.com)

These two Apple web pages provide information on which Macintosh models use which batteries:

- For old Macs:  
<http://docs.info.apple.com/article.html?artnum=11751>
- For newer Macs:  
<http://docs.info.apple.com/article.html?artnum=86181>

To reset the power manager, visit [www.apple.com/support](http://www.apple.com/support) and search for these Knowledgebase^ articles:

- PowerBook 100 through PowerBook 5300 - Knowledgebase article: 58416
- PowerBook & iBook (released 1997 or later) - Knowledgebase article: 14449
- iMac G4 (Flat Panel) - Knowledgebase article: 95165
- For other models, Knowledgebase article 2238 explains how to reset the PRAM^ and NVRAM.

## 178 A Summary Of Contact Information

Apple Knowledgebase page which explains how to back up some of your important information:

<http://docs.info.apple.com/article.html?artnum=301239>

Apple Knowledgebase page which explains how to install Applications^ from the “Tiger” (Mac OS X 10.4) DVD:

<http://docs.info.apple.com/article.html?artnum=301229>

When using Mac OS X 10.3.9 or earlier and the Macintosh won’t start, check this Apple web page for assistance:

<http://docs.info.apple.com/article.html?artnum=106464>

If the Macintosh begins to start up but stops at a blue Screen^:

<http://docs.info.apple.com/article.html?path=Mac/10.4/en/mh2235.html>

If your Mac’s Hard Drive needs to be replaced, but you still need to retrieve information from its Hard Drive, there are services which MAY be able to copy your data off that Hard Drive, place it on a CD and send it to you. One such company is “DriveSavers” (800-440-1904)

<http://www.drivesavers.com>

To learn more about DiskWarrior or to purchase it directly from the manufacturer:

- DiskWarrior (800-257-6381)- [www.alsoft.com](http://www.alsoft.com)

For Apple’s explanation of “Permissions”, visit this web page:

<http://docs.info.apple.com/article.html?artnum=25751>

Cable Technologies (data cables)

- Ethernet^:

<http://grouper.ieee.org/groups/802/3>

and also:

[http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito\\_doc/ethernet.htm](http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ethernet.htm)

- FireWire^:

<http://developer.apple.com/hardwaredrivers/firewire/index.html>

- USB^:

[www.usb.org/about/faq](http://www.usb.org/about/faq)

.....

This Apple web page explains where the Macintosh G3, G4 and G5 “CUDA^ buttons” are located:

<http://docs.info.apple.com/article.html?artnum=86760#where>

.....

The Apple web page lists which Macs are under their “Repair Extension Program”:

[http://www.apple.com/support/exchange\\_repair](http://www.apple.com/support/exchange_repair)

.....

## 180 About The Author

Paul Rego was on a music career path until he innocently became lured into Apple's world in 1981 when he saw a music keyboard displayed in the window of an Apple retailer! By a chain of events, he has gained invaluable experiences leading to the present. He became experienced in the following:

- Programming (Apple ][, Apple /// and Macintosh),
- Page design and layout,
- Technical support by phone,
- Beta tested a few Apple ][ and Macintosh programs before they were released to the general public.
- In-person sales demos — he was the Asheville, North Carolina “Apple Mass-Market Rep.” for several years and
- Over the years, he has self-published a few Apple ][ and Macintosh books (no longer in print). Of course, his 9th book, “Macintosh Efficiency”, is still available. Details can be found on his company web site.

In 1981, he started Insight Data — a Macintosh-only training, troubleshooting and consulting business, moving to Asheville in 1993. He and his wife Sylvia still play music together, but most of their time is consumed by volunteer work in M.A.C.S. (Macintosh Asheville Computer Society, an Apple User Group) and the world of Macintosh.

Details of Paul's background can be found on his company website:

- <http://homepage.mac.com/macocosmos>

If a word in this book has this character (^) next to it, such as Sidebar^, it means this word is defined in this Glossary.

**Alias**

This is a file which provides the Macintosh with information on where to find the original. There is no useable content within an alias file. Its only job is to be a convenient way to access the original file. Leave the original file in its current location (“Documents” folder, “Applications” folder, etc.) and place the alias anywhere you like — the “Desktop”, maybe a project folder, etc. In addition to this, an alias is automatically created whenever a file, folder or program is added to the “Dock” or the “Sidebar” of a “Finder” window. In other words, all the items you see in the “Dock” and the “Sidebar” are not real. Deleting them will not delete or damage the original.

**Application**

Also referred to as “Software” or a “Program”. Interactive features which allow you to perform various tasks — usually with specific goals, such as writing letters, editing photos, sending eMail, etc. To be activated (used) an Application must be placed into RAM (Random Access Memory). On the Macintosh, this is accomplished by the Operating System whenever we double-click on the Application’s icon. (As contrast, see “Firmware”).

**Bad Blocks**

Physical defects within one or more of the smallest storage units provided by a Hard Drive.

**Blocks**

Also called “Sectors”. Blocks are, small, physical locations on a Hard Drive which normally store information. Blocks can wear out or go BAD for different reasons. When a Block goes bad, the computer will no longer be able to retrieve the data it contains. When this happens, the Macintosh can exhibit a number of different problems, such as:

- An overall slowness,
- Corrupted (mixed up) documents. (Files won’t open.)
- Corrupted programs. (Programs won’t Launch.)
- The Macintosh won’t start up.
- The Macintosh won’t go to Sleep.
- The Macintosh won’t Wake from Sleep, etc.

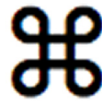
## Browser

Application, such as “Safari”, which is used to view web pages.

## Cache (pronounced kash)

A storage of information which can be retrieved faster than a component or device from which this data is otherwise accessed. In other words, in the case of a web Browser, such as Apple’s “Safari” program, it caches (or stores) web page information on the Mac’s Hard Drive, because if this data is needed again, it can be retrieved from the Hard Drive much faster than Safari can go out to that website and re-download it.

## Command Key



Also referred to as the “Apple” key. Considered one of the “Modifier Keys”, along with “Option”, “Control” and “Shift”. Holding down one or more of these keys, with or without the pressing of the mouse button, will activate various functions in different programs.

## Cookies

A “Cookie” is information which is given by a website to a Browser, such as “Safari”, for future use. This information could be your user name for that website, preference settings (for the features you want to use on a particular site), etc.


## CUDA

Capacitive Unit Discharge ASIC (Application-Specific Integrated Circuit). A small button soldered to the motherboard (main logicboard) of the Macintosh. On some Macintosh models, this is labeled as “SMC\_RST”, “SMU Reset Button”, etc. The CUDA/SMC/SMU button is a part of, and can reset, the PMU/SMC/SMU system. (Pressing this button more than once, within a 1-minute time-period, MAY cause serious problems.) This Apple web page explains where the Macintosh G3, G4 and G5 “CUDA buttons” are located:

- <http://docs.info.apple.com/article.html?artnum=86760#where>  
(It doesn’t look as though Intel-based Macs have a “CUDA button”.)

# 184 Glossary

## Cursor

The Cursor is on the letter Z in the line below.  
Tomorrow we can visit the oo.

The character-sized rectangle or underline within a block-based text area. The Cursor moves ON or below characters (not between them) and indicates where a letter, number, space, etc. will be entered or erased. The Cursor is moved by using the mouse or the Arrow keys (Up, Down, Left, Right).

NOTE: Some authors incorrectly refer to the Pointer as a “Cursor”.  
(see “Pointer”.)

## Default

Attributes which can be changed by the user, but which have been set by the manufacturer to automatically perform a certain way. For example, the default (or FACTORY SET) margins in a word processor are usually 1-inch all the way around. Although you can change them, the company which created that program has set them this way.

## Desktop

Just like your real desk, a computer’s Desktop is where items are placed, such as files, folders, Hard Drive icon, etc. The Macintosh Desktop is part of the “Finder” (the Operating System). Although you can move, resize and close any program’s windows, you cannot do this to the Desktop.

## Dialog Box

An enclosed area on-Screen, such as a window, in which the User (you) can enter information and/or make choices.

## Directory (See “Directory Structure”)



## Directory Structure

Basically... information stored on a Hard Drive, CD, DVD, Flash Drive, etc., which keeps track of every item stored as well as WHERE, physically, it can be found on that disk. This information cannot be seen through normal use of the Macintosh. The Macintosh uses this information as a type of map, in order to open, save, re-name, re-locate and delete every file, folder and program that disk is storing.

## Disclosure Triangle

A solid-colored triangle, about the height of a typical (12-point) character which, when clicked, points in a different direction (usually downward) and reveals the contents of that item. The most typical example of this can be seen while viewing the contents of any “Finder” window in “List View”. Clicking any Disclosure Triangle (located next to any folder), points it downward and displays the contents of that folder, indented below it. Clicking this triangle a second time, hides the contents of that folder and points the triangle to the right.

## Display (see “Monitor”)

## Dock

The line of icons which appear along the left, bottom or right edge of the Screen<sup>^</sup>. The Dock contains aliases<sup>^</sup> and is designed to store items which you will use most often. This allows you to have quick access to any file, folder, program or web link, while working in any program. The Dock is also the fastest way to tell if a program is currently OPEN or ACTIVE in RAM — it will have a black triangle next to its icon.

## Drivers

Software (information) which tells the Macintosh and a specific peripheral how to communicate with each other. Typical Drivers are for printers, cameras, scanners, etc.

## Ethernet

A networking technology between computers and some devices, such as a Broad-band (high-speed) Modem, Router, etc. The maximum length of an Ethernet cable

## 186 Glossary

should be no longer than 328-feet (100m). For more information on Ethernet, visit: <http://grouper.ieee.org/groups/802/3>, and also: [http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito\\_doc/ethernet.htm](http://www.cisco.com/univercd/cc/td/doc/cisintwk/ito_doc/ethernet.htm)

### **Extension**

A specialized piece of Software which communicates more deeply with the Operating System than a typical program. An Extension can provide NEW and/or BETTER functionality to one or more programs than can otherwise be achieved by the Operating System itself. An Extension is typically loaded (activated) when the Macintosh starts up.

### **FireWire** (also known as “IEEE 1394”)

A connection technology between computers and certain peripherals, such as external Hard Drives, cameras, etc. This technology allows the devices to Send and Recieve information between them. Cables which are less than 15-feet (4.5m) long are best. (Shorter is better.) For more information on FireWire technology, visit: <http://developer.apple.com/hardwaredrivers/firewire/index.html>

### **Firmware**

A program (instructions) which is stored in a fixed form, such as ROM (Read-Only Memory), PROM (Programmable Read-Only Memory) and EPROM (Erasable Programmable Read-Only Memory). The Firmware within a PROM or EPROM can be changed through a Software update, if necessary. In other words, “Firmware” is a program inside a computer chip.

### **Hacker**

A person who breaks into a computer without authorization. This can be accomplished (directly) by sitting at the computer being broken into or (indirectly) from another computer in the same room or over the Internet.

### **Hub**

A small USB-, FireWire- or Ethernet-based device which is connected to a computer and allows two or more peripherals to be connected to it, so they can also communicate with the computer. When there are more peripherals (printers, scanners,

cameras, etc.) than there are ports on the computer, a Hub can be used to connect everything together at the same time. Then, whenever one peripheral is needed, the computer can easily locate it.

## **Jaguar**

Mac OS X version 10.2. Apple's Operating System versions from 10.2.0 through 10.2.8 (See also "Leopard", "Panther" and "Tiger")

## **Knowledgebase**

Apple's online articles which cover just about every technical aspect of every product they make. If you know the article number, visit the Apple website ([www.apple.com](http://www.apple.com)), click on the "Support" Tab (located at the top-right of that page) and enter the words "document no. " followed by the article's number. For example:

document no 14449

Then press the Return key on the keyboard

## **Leopard**

Mac OS X version 10.5. Apple's Operating System versions from 10.5.0, 10.5.1, 10.5.2, etc., up to (but not including) version 10.6.

## **Monitor**

Sometimes referred to as a "Display". The device which a computer uses to show text, images, animations, etc. (See also "Screen")

## **Operating System**

Basically... The Software (instructions) which control a computer and make it possible to run programs. Mac OS X, for example, is what provides us with that "Macintosh" experience. The Operating System allows us to connect to the Internet, view photos, print documents, etc.

## **Panther**

Mac OS X version 10.3. Apple's Operating System versions from 10.3.0 through 10.3.9 (See also "Jaguar", "Leopard" and "Tiger")

**Partition**

One or more sections of a Hard Drive which work, and appear, as a separate disk (“Volume^”). Most Hard Drives consist of only one partition. Each partition will have its own Hard Drive icon in the “Finder” (when viewed on the “Desktop^” or in the “Sidebar^”) and in Apple’s “Disk Utility” program.

**plist** (pronounced: PEE-list). (see “Property List”)

**PMU** (Power Management Unit)

From Apple’s Knowledgebase article 86760... “The PMU is a microcontroller chip that controls power functions for the computer. The PMU is a computer within a computer, as it has its own memory, Software, Firmware, input/output, a CPU, and more.” (see also “SMC” and “CUDA”)

**PMU/SMC/SMU**

This technology tells desktop Macs:

- When to turn ON and OFF,
- When to wake from Sleep,
- When to idle,
- and controls the fans and handles system resets from various commands, etc.

**PMU/SMC**

In portable Macs controls: backlighting (of the Screen^), Hard Drive spin down, Sleep, Wake from Sleep, some charging aspects, trackpad control and some input/output as it relates to the Macintosh sleeping.

**Pointer**

The small, on-Screen object, typically an arrow, which moves whenever the mouse is moved. The Pointer is the location where an action will take place when the mouse button is clicked. Sometimes the mouse button has to be held down (to pull down a menu, for example) for an action to occur. The Pointer’s appearance can change (arrow, i-beam, plus sign, etc.), depending on the function it’s performing.

NOTE: Some authors incorrectly refer to the Pointer as a “Cursor”. (see “Cursor”.)

**PRAM** (pronounced: PEE-ram)

“Parameter RAM” or “Parameter Random Access Memory” stores the following on most Macs:

- Some Monitor settings,
- Time Zone preference
- Startup Volume preference
- Speaker volume
- Recent Kernel Panic information (if any)
- DVD region

**Preference file** (see “Property List”)**Property List**

A file which stores the User’s (that’s you) settings for a specific program or System attribute (found in “System Preferences...”). This type of file typically has the “.plist” (pronounced: PEE-list) tag at the end of its name and can be found in “Home” > “Library” > “Preferences”. Other Preference files can be found in the Hard Drive (“Macintosh HD”) > “Library” > “Preferences”

**Screen**

The part of a Monitor which shows text, images, animations, etc. The Screen is our view into the computer. It shows us the choices we can make at any given moment. (See also “Monitor”)

**Screenshot**

An image showing what was displayed on the Screen^ at that time. On the Macintosh, Screenshots can be made of the entire Screen (Command Shift 3), an area of the Screen which is captured when you drag across it (Command Shift 4, then drag) and a specific window (Command Shift 4, then Spacebar, then click the mouse button). Screenshots can be helpful when troubleshooting and when you want to remember certain settings.

**Sidebar**

In Mac OS X version 10.3 (“Panther”) and 10.4 (“Tiger”) the Sidebar is the column located down the left side of all “Finder” windows. (If you don’t see the “Sidebar”, click once on the “Toolbar button”, which is located in the top-right corner of every “Finder” window.) If you still don’t see the “Sidebar”, double-click half-way down the left-edge of any “Finder” window.

**S.M.A.R.T.**

“Self-Monitoring, Analysis and Reporting Technology”, warns of predictable forms of impending Hard Drive failure. Programs such as Apple’s “Disk Utility” program and DiskWarrior (by [www.alsoft.com](http://www.alsoft.com)) allow you to verify the state of this technology in any Hard Drive connected to the Mac.

**SMC** (System Management Controller)

This is a chip on the main logicboard which controls all the power functions on Intel-based Macs. (See also “CUDA”)

**SMU** (System Management Unit)

This is a chip on the main logicboard which controls all the power functions on PowerMac G5 (late 2004), PowerMac G5 (late 2005) and iMac G5 (Ambient Light Sensor). (see also “SMC” and “CUDA”)

**Tiger**

Mac OS X version 10.4. Apple’s Operating System versions from 10.4.0 up to, but not including, 10.5 (See also “Jaguar”, “Leopard, and “Panther”)

**UPS** (Uninterruptible Power Supply)

Basically, this is a surge suppressor with a battery inside. A UPS provides a constant and even flow of electricity to any device connected to it. If the UPS detects a surge (too much electricity), the surge suppressor technology instantly kicks in. If the UPS senses a lack of electricity (even for a split-second), the battery is automatically activated. Visit [www.apc.com](http://www.apc.com) for details and to determine which UPS is right for your equipment.

**NOTE:** Since the battery in a UPS is heavy, I would not recommend buying one via mail-order — even if the price is discounted, the shipping charge would probably offset it.

(See “GENERAL DOs AND DON’Ts” > “Use a UPS” for more information.)

## **USB** (Universal Serial Bus)

A connection technology between computers and certain peripherals, such as printers, scanners, cameras, Flash Drives, etc. This technology allows the devices to Send and Receive information between them. Cables which are less than 10-feet (3m) long are best. (Shorter is better.) For more information on USB technology, visit: [www.usb.org/about/faq](http://www.usb.org/about/faq)

## **Virus**

A program (instructions) which disrupts the normal operating of a computer, in a destructive way — such as deleting files.

## **Volume**

A storage device, or a partitioned^ part of that device, which can store data. In other words, a Hard Drive, Flash Drive, CD, DVD, etc. or, if that device can be partitioned, each of those smaller storage sections are considered a Volume. For example, if a Hard Drive has two partitions, the Macintosh will see this as two Volumes and treat each as if it were a separate, physical Hard Drive.

## **Web Mail**

eMail which is sent or received through a Browser. (An alternative to “Web mail” is to send and receive eMail through an eMail program, such as Apple’s “Mail” program.

## **Zapping the PRAM** (pronounced: PEE-ram)

The process of clearing (erasing) the PRAM (Parameter Random Access Memory). This procedure is sometimes performed when troubleshooting a Macintosh. (See “FIXING THE MODULES” > “Zap the PRAM” for information on how to do this.)

Index ..... 193 - 199



**A** .....

AirPort

- AirPort Admin Utility* **98**
- AirPort Setup Assistant* **98**
- Check Network Settings* **98**
- Check Software Settings* **88**
- Isolate From Interference* **84**
- Save Your Settings* **5**
- Verify Wireless Card* **86**

Applications (programs)

- Cannot update* **114**
- Check with new User account* **29**
- Compatibility issues with Mac OS X (see WARNING)* **95**
- Not working properly* **99, 114**
- Slowness or not working properly* **94**

**B** .....

Battery

- Clock battery depleted quickly* **39**
- Portable Macintosh battery* **3**
- Replace the PRAM/Clock/Backup battery* **38**
- Press CUDA button after replacing (see NOTE)* **39**
- Reset date and/or time* **37**
- Verifying a UPS battery (see NOTE)* **28**

Beep

- at Startup* **32, 33, 34**
- UPS* **28**

Black & White Images on Screen (*Check Universal Access*) **140**

Black Screen (*Cleaning the Screen*) **173**

Black Screen at Startup (Verify RAM) **32**

Blue Screen at Startup

- A Summary Of Contact Information* **178**
- Hold Shift key at Startup* **45**

# 194 Index

Blue tint on windows (*Save Your Settings*) **7**

## Bluetooth

- Check Device Batteries* **85**
- Check Software Settings* **88**
- Save Your Settings* **5**
- Verify Wireless Card* **86**
- Wireless Device Problem* **97**

## Broadband Modem

- Cannot access the Internet (bad Modem)* **143**
- Check for Firmware update* **91**
- Check Network Settings > NOTE* **98**
- Contact ISP support for problems* **141**
- Modem Hardware Problem* **143**
- Reset Modem, Router and Mac* **120, 121**
- Save Your Settings* **5**
- Slowness or non-working Internet access* **142**
- Sluggish performance (set to Always ON)* **121**
- Switch To Broadband* **119**
- Use a UPS* **166**
- UPS (Uninterruptible Power Supply)* **175**
- Won't work with Router (set to Bridged Ethernet)* **121**
- Verify Wireless Card* **86**

## Browser

- Cannot update* **114**
- Check with new User account* **29**
- Compatibility issues with Mac OS X (see WARNING)* **95**
- Delete Browser Cookies* **135**
- Install a newer Browser* **139**
- Not working properly* **99, 114**
- Reinstall corrupted Browser* **138**
- Removing a corrupted program file* **132**
- Removing personal information* **135**
- Removing stored images from Hard Drive* **133**
- Removing your web page trail* **137**
- Verifying Internet connection > (see NOTE)* **120**

Burn (see Smell)

## **C**

Cable Modem (see Broadband)

### Cables

- Check the data cable* **122**
- Items To Notice* **2**
- Replace the cable* **77**
- Unplug all devices* **69**
- Unplug USB and FireWire Hub* **62**

### CUDA button

- Apple web page for CUDA button* **179**
- Don't press more than once* **145**
- Use when replacing clock battery (see NOTE)* **39**

## **D**

### Dial-Up

- Contact ISP support for problems* **141**
- Save Your Settings* **5**
- Switch to Broadband* **119**

DSL Modem (see Broadband)

## **E**

### Electricity

- Check the data cable > NOTE* **122**
- Check The Electricity* **28**
- Compatibility issues with Mac OS X (see WARNING)* **95**
- Don't Jump To Conclusions* **4**
- Items To Notice* **3**
- Remove the optical disc > WARNING* **68**
- Reset Modem, Router and Mac* **120**
- Reset printer (contact tech support)* **78**

### eMail

- Attachment-Size limit (see NOTE)* **128**
- Cannot Send eMail (change Outgoing Port)* **129**
- Cannot Send eMail (double-check the address)* **131**
- Cannot Send or Receive eMail (bad Modem)* **143**
- Cannot update* **114**
- Check with new User account* **29**

# 196 Index

*(eMail continued)*

- Check with your Internet Service Provider* **141**
- Files which can be safely thrown out* **103**
- Not working properly* **99, 114**
- Reduce the number of messages* **127**
- Replace Hard Drive* **60**
- Rebuild Mailbox* **124**
- Removing a corrupted program file* **130**
- Reset Modem, Router and Mac > The Router* **121**
- Save Your Settings* **6**
- Slowness or non-working eMail* **142**
- Verify RAM* **34**

## Ethernet Cables

- Check network settings* **98**
- Check the data cable* **122**
- Replace the cable* **77**
- Reset Modem, Router and Mac* **120**
- Unplug all devices* **69**

## F

## FireWire

- Check the data cable* **122**
- Check Software settings* **88**
- Replace the cable* **77**
- Replace USB/FireWire device* **72**
- Unplug all devices* **69**
- Unplug USB and FireWire Hub* **62**
- Verify RAM* **34**

## Firmware (Check for Firmware update) **91**

## Flashing Question Mark at Startup

- Force the Mac to find a Startup disk* **42**
- Replace the PRAM/Clock/Backup battery* **38**
- Reset drive in System Preferences* **55**

## Fonts

- Check with new User account* **29**
- Validate* **44**

**H** .....

## Hard Drive

- First line of defense (run Disk Warrior)* **40**
- Force the Mac to find a Startup disk* **42**
- Low-Level-Format the Hard Drive* **57**
- Replace Hard Drive* **59**
- Reset drive in System Preferences* **55**
- Reset Boot-drive with OS X disc* **56**
- Safe Boot* **43**
- Tracks & Sectors diagram* **59**
- Unmont before removing external Hard Drive* **62**

**I** .....

## Internet Access

- for Broadband, High-Speed, Cable and DSL Modems, see Broadband*
- for standard telephone modems, see Dial-Up*

iCal (Restoring iCal's Alarm Scheduler) **46**

## ISP (Internet Service Provider)

- Check ISP for troubleshooting* **131**
- Change "Outgoing Server Port" to 587* **129**
- Check network settings* **98**
- Contact ISP support for problems* **141**
- Reset Modem, Router and Mac* **120**
- Trash "Envelope Index" (if IMAP) NOTE* **130**

**L** .....Login Items (verifying) **45****M** .....

## Modem

- for Broadband, High-Speed, Cable and DSL Modems, see Broadband*
- for standard telephone modems, see Dial-Up*

**P** .....

## PMU

- Replace the PRAM/Clock/Backup battery* **39**
- Reset the PMU/SMC/SMU/PRAM* **49**

# 198 Index

## PRAM

- Replace the PRAM/Clock/Backup battery* **38**
- Reset date and/or time* **37**
- Reset the PMU/SMC/SMU/PRAM* **49**
- Zap the PRAM* **53**

## Printer

- Be sure to use “name-brand” ink* **76**
- Can be affected by the Mac’s clock battery* **38**
- Check Software settings* **88**
- Check the data cable* **122**
- Check with new User account* **29**
- Compatibility problems (downgrade Mac OS X)* **95**
- Compatibility problems (reinstall printer Software)* **113**
- Compatibility problems (upgrade Mac OS X)* **94**
- Isolate wireless printer from interference* **84**
- Replace low ink tank* **73**
- Replace print head (if possible)* **79**
- Replace the cable* **77**
- Replace USB/FireWire device* **72**
- Reset printer (contact tech support)* **78**
- Shut down Mac and printer to reset things* **83**
- Verify wireless card* **86**
- Won’t print properly* **75**
- Won’t work* **62**

## R

### Router

- Check for Firmware update* **91**
- Check network settings* **98**
- Contact ISP support for problems* **141**
- Contact Router support for help* **142**
- Reset Modem, Router and Mac* **120**

## S

### Safari (see Browser)

### Safe Boot (Hold Shift key at Startup) **43**

## SMC

- Replace the PRAM/Clock/Backup battery* **39**
- Reset the PMU/SMC/SMU/PRAM* **49**

## Smell

- Items To Notice* **3**
- Who To Turn To?* **161**

## SMU

- Replace the PRAM/Clock/Backup battery* **39**
- Reset the PMU/SMC/SMU/PRAM* **49**

## Standard Telephone Modem (see Dial-Up)

## Startup Disk

- Mac starts from wrong Hard Drive* **56**
- Repairing the Directory of (with Disk Warrior)* **40**
- Reset Boot-drive with OS X disc* **56**
- Reset drive in System Preferences* **39, 55**

## Startup Items (see Login Items)

## T

## Telephone Modem (see Dial-Up)

## U

## UPS (Uninterruptible Power Supply) Verifying a UPS battery (see NOTE) **28**

## USB Cables

- Check the data cable* **122**
- Check Software settings* **88**
- Downgrade Mac OS X* **95**
- Replace the cable* **77**
- Replace USB/FireWire device* **72**
- Unplug all devices* **69**
- Unplug USB and FireWire Hub* **62**
- Verify RAM* **34**

## W

## Wireless Device (see Bluetooth)

## Wireless Network (see AirPort)

## Z

## Zap the PRAM **11**

- Cures Most Problems* **157**
- Procedure* **53**

# Macintosh® Troubleshooting Efficiency

Skill Level: Beginner to Expert  
Covers all Macintosh models

The information within this book has been designed to be clear and concise with step-by-step instructions at every opportunity and a complete index at the back.

Each solution starts on its own page — making them easier to find. The text is relatively large in order to be easier on your eyes and secondary titles help to separate themselves from other areas.

The hard work of figuring out which solutions should be paired with each problem has already been done for you.

The "Problems & Solutions Chart" provides a quick method for solving problems. Experts can look up a problem and easily see a list of solutions. Beginners will simply begin with this chart, start with the first solution in the list and follow the steps to solve the problem. If the problem isn't solved with the first solution, simply go down the list and follow those steps until the problem is solved.

Although specifically tailored to "Tiger", Mac OS X 10.4, a lot of the techniques in this book can be used with previous Mac OS X versions as well as with "Leopard", Mac OS X 10.5. There's no overwhelming "rocket science", so Beginners can feel comfortable right from the start.

There's a bit of a misconception out there when it comes to solving computer problems. Some people think, "It's difficult to solve computer problems", "You must dig down to the detail of the problem before it can be solved" or "You must use Apple's 'Terminal' software and enter programming code, in order to solve most Macintosh problems."

In 1982, when I started with the Apple ][+ computer, and during the first several years of owning a Macintosh, my troubleshooting-mind worked the same way. At one point, however, I began to re-examine the way I approached Macintosh troubleshooting. I noticed no matter what the problem was, I would always solve it by fixing an area which encompassed the problem. I also paid more attention to the conversations I had with various manufacturer tech support people. They never got into the details of any problem I presented. They simply tried to isolate the problem into a certain area, or module, and then suggest I fix that area.

All of this has led me to a much easier approach to solving Macintosh problems. I never use Apple's Terminal program, so you won't be asked to do so here. I have created a troubleshooting chart which will be your guide. Problems have been compartmentalized and each group of associated solutions starts with the simplest action you should use and progresses to more involved solutions. Since most problems are based on "software", even a beginner can use this book to get their Macintosh working again. So open this book and feel confident that you can solve most of your own Macintosh problems.

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— Paul Rego



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